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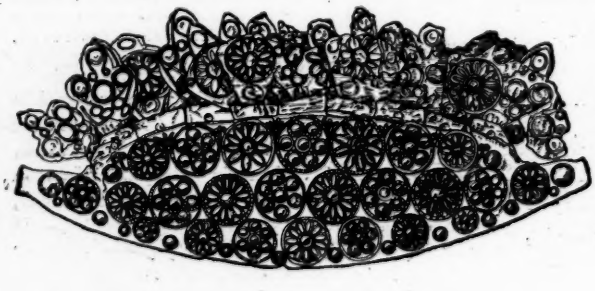
EXAMPLES OF THE SPLENDID WORK DONE BY THE PIONEER GOLDSMITHS OF THE HEROIC AGE OF GREECE.—Homer first awakened wonder by singing of the dazzling objects of pure gold, fashioned, used and worn by the Mykeneans, though his statements were looked upon as the trappings of a romantic legend. In the nineteenth century, however, Schliemann's excavations brought to light in great numbers, authentic objects which suddenly turned romance into history. These objects belong to a date anterior to the Trojan War and characterise the civilisation found in Greece by the invading Acheans. The gold diadem here reproduced is one of these. The diadem is embossed with three rows of circles filled alternately with rosettes and bosses and with other small motifs in the first and third rows; a richly-ornamented crest, forming a garland of leaves and flowers, surmounts this oval portion. The excavator wrote of the bodies of the ladies whose graves he opened: "They were literally laden with golden jewellery." Gold ribbon to bind the hair, beads, hair-pins, combs, collars, bracelets, rings and other objects were found in great abundance.



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Remarks
ON
THE POSSIBILITIES OF EXPLORATORY THORACOTOMY.*

BY
PROFESSOR GEORGE E. GASK, F.R.C.S.,
DIRECTOR, SURGICAL UNIT, ST. BARTHOLOMEW'S HOSPITAL.

(*With Special Plate.*)

THE beginnings of thoracic surgery date from the very earliest times of which we have records. It is evident that Hippocrates was familiar with pleural empyema, and his accounts of the means of diagnosis and the various methods of operation by cautery or cutting are classical.[1] Army surgeons throughout the ages have been called upon to treat wounds of the chest inflicted by spear, arrow, or rifle bullet. Celsus, Ambroise Paré, Wiseman, Guthrie, Larrey, and many others have left records of their various efforts. Yet in spite of the ever-recurring need and the obvious desirability of finding a satisfactory treatment for injuries

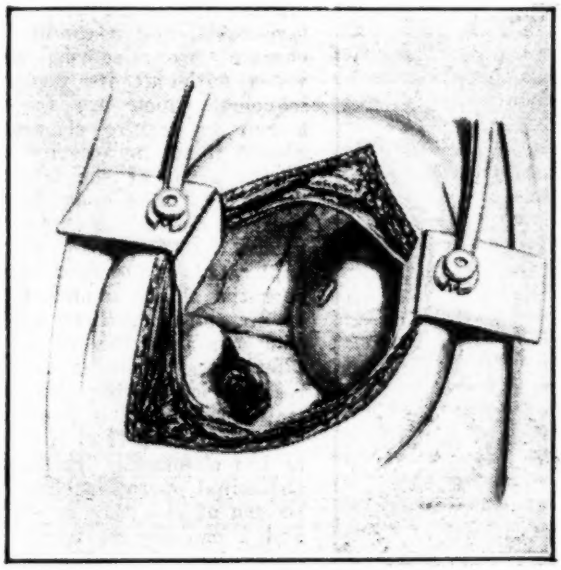

FIG. 1.—Method of dealing with gunshot wound involving the diaphragm and lung.

and diseases of the chest, thoracic surgery has never progressed far, and in the great advance which characterized general surgery in the past fifty years it has definitely lagged behind.

The purpose of this paper is to attempt an analysis of this strange lack of progress, to discuss what is possible at the present time, and to hint at some developments for the future. With the establishment of aseptic surgery the fear of suppuration and many of the dangers incident to operations which haunted our predecessors were removed, and yet the chest still remained an unexplored field for the surgeon, a fact which at first sight it seems difficult to understand. The explanation may be found in a widespread, though ill founded, belief that on the opening of one pleural cavity under ordinary atmospheric pressure not only one lung, but both lungs, would collapse and the patient die of asphyxia. This assumption was perhaps encouraged by physiologists, who based their opinion upon animal experiments, and though this is true for certain animals, such as guinea-pigs and dogs, in which the mediastinum is poorly developed, it is not true for man, in whom the mediastinum is a moderately stout structure completely separating the two pleural cavities.

In order to get over this assumed difficulty, surgeons invented complicated and costly chambers in which patients could be placed, either under a positive or a negative atmospheric pressure, so that the interchange of gases in the blood could be maintained with the minimum of respiratory movements. Under these conditions operations were carried out successfully, and one likes to associate this stage in the evolution of thoracic surgery with the names of Sauerbruch and Willy Meyer and Tuffier, to whom great credit is due. These pressure chambers were, however, far too costly to come into common use in hospitals, and in consequence there was little general advance.

Such was, in brief, the position of thoracic surgery at the advent of the great war. The years 1914 and 1915 were dark days for surgery. Little could be done for the sufferers. Frightful suppuration, gas gangrene, and septicaemia complicated the great majority of the wounds. The words of a distinguished surgeon remain clear in my memory: "Surgery has gone back to the pre-Listerine age"; by which he meant that all the efforts of the surgeons could not avert suppuration, and that the most to be done for the wounds was incision and drainage. It was then that the ghastly method of the guillotine amputation came into vogue, while for wounds of the chest the routine treatment was to put a pad and bandage over the wound, to administer some opium and an expectorant mixture, and to await

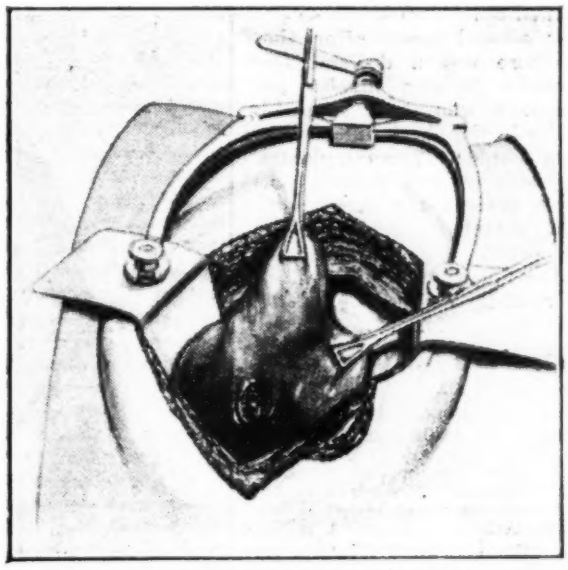

FIG. 2.—Gunshot wound of lung: to show method of exposure and extraction of missile.

developments.[2] In 1916 opportunities for surgery at the front were vastly improved, for surgeons with well equipped hospitals were established close behind the fighting line, and the desire to ameliorate the condition of the sufferers provided a stimulus strong enough to overcome some of our long-cherished prejudices.

About the same period in both the French and British armies surgeons began to question this purely expectant treatment of chest wounds and to consider the possibility of opening the pleural cavity, of removing foreign bodies, and of suturing wounded and bleeding lungs. It was, of course, quite impossible to erect pressure chambers anywhere near the front, and, though the fear of making a wide opening into the chest still persisted, it was determined to make an attempt. With fear and trembling the operations were undertaken, when it was quickly found that the chest could be opened widely under a general anaesthetic, that missiles and portions of bone and clothing which had been driven into the pleural cavity could be removed, and that the chest could be closed completely and the wound heal by first intention. The soundness of the practice was soon recognized, and in a short time it was established as a fit and proper treatment for certain types of wounds.[3]

The establishment of this fact is a landmark in the evolution of thoracic surgery the importance of which must be recognized. It marks the abolition of pressure chambers, with the recognition of the feasibility of opening the chest widely under general anaesthesia without undue risk to

* Given before the Southampton Division of the British Medical Association on January 14th, 1925.

the patient, and the ability of the surgeon to have the thoracic contents under direct view, to arrest bleeding, and to handle and suture a wounded lung. It must not be forgotten in the consideration of the evolution of this branch of surgery that the use of *x* rays for the purpose of diagnosis and the localization of foreign bodies and of disease has been a most important aid, though full use of the method could not be made until the technical operative details had been elaborated.

After this brief sketch of the evolution of thoracic surgery let us consider what has occurred since the war. Stimulated by their experiences with the treatment of infected haemothorax, the result of organisms which had been carried into the pleural cavity by a missile, some surgeons thought that the ordinary forms of empyemata as seen in civilian practice might be treated by a free opening, irrigation, and subsequent closure. Though a certain number of successful results have been reported, the method on the whole cannot be judged a good one. The reason appears to be that in most of the empyemata which arise in civilian practice the source of infection lies in the lung, and that even if the pleural cavity were cleansed, reinfection would soon occur; so that for the present the old and well tried method of incision and drainage should be relied on.

For several years after the war there was a demand for treatment from a number of pensioners who had retained missiles in the chest which were giving trouble. The complaints they made were of shortness of breath, pain in the chest, and, in a certain proportion, of haemoptysis and suppuration. The two following cases are illustrative of the types of operation which were performed.

In 1916 an officer (Captain B.), aged 27, received a shell wound of the chest with retention of a piece of shell in the left lung. He returned to duty in 1918 and remained well until September, 1920, when he had a severe haemoptysis, followed by a succession of small haemorrhages and continued expectoration of blood-stained sputum. A radiogram showed a fragment of shell lying in the lower part of the left lung.

An operation was performed in January, 1921, some four and a half years after the wound. The chest was freely opened by an incision along the ninth rib, the lung was exposed, and the piece of shell found lying in an abscess cavity in the lower lobe of the lung. The fragment of shell was removed, the wall of the abscess cavity dissected away, the space closed with layers of catgut sutures, and the chest then closed.

The operation wound healed well, and the patient was discharged four weeks later. The haemoptysis and expectoration disappeared completely, and subsequent letters showed that the patient made a permanent cure.

A soldier (T. C.), aged 31, was wounded in the Dardanelles by a shrapnel ball which entered the chest behind the left shoulder and lodged in the posterior mediastinum, immediately to the left side of the aorta, every pulsation of which was communicated to the ball. The man complained of pain in the chest, and stated that he was unable to work on this account. In this patient the mediastinum was opened by splitting the sternum down the centre. This gave easy access to the mediastinum, and the ball was removed without opening either of the pleural cavities or doing any damage to the thoracic contents. The sternum was sewn together, and recovery was uneventful, the patient being in hospital under three weeks. Reports received lately show that he has remained well.

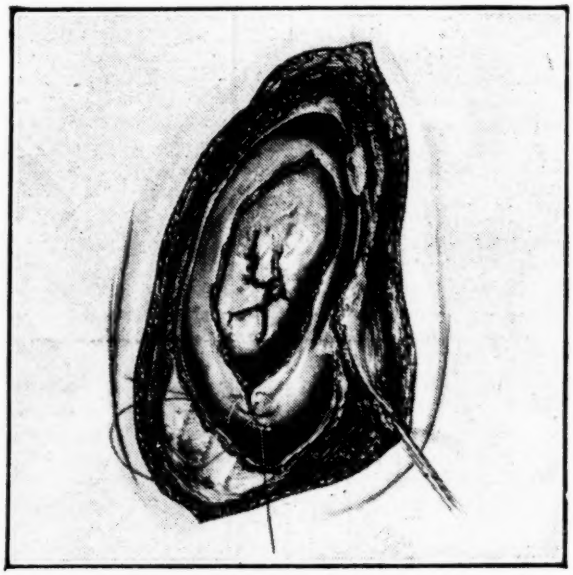

FIG. 3.—Gunshot wound of chest, involving both pleural and peritoneal cavities; showing method of suture of lacerated diaphragm.

These operations may be considered to be the direct outcome of the war, and we may turn now to methods of treating various types of disease.

It is not proposed here to enter into a discussion of the treatment of frank empyema, for this subject has been fully dealt with elsewhere. I do, however, want to inquire into what may be done for those patients who have a collection of pus hidden away in some pocket of the pleural cavity or between the lobes of the lung. In some the pus can be located with the needle, but in others this is not so, and a long and distressing illness is the result. To illustrate my meaning let me tell you about one of our nurses at St. Bartholomew's Hospital.

During the great epidemic of 1918 this lady contracted influenza, which was followed by a pleural effusion. Later she spat up a quantity of pus, and for a short time it appeared as if this was the end of the affair; but the cough and expectoration of pus recurred, associated with fever, and she was totally incapacitated from doing her work. The condition might have done for tuberculosis, but tubercle bacilli could not be found in the sputum, which was crowded with pus cells and streptococci. Repeated, but fruitless, attempts were made to find pus by needling, and at last an operation was suggested.

The chest was opened widely under a general anaesthetic and an abscess found between the lobes of the lung. The abscess cavity had fibrous walls more than a quarter of an inch thick. This fibrous tissue was dissected away, and the cavity closed by approximation with catgut sutures. The operation was followed by immediate cessation of all symptoms, a rapid recovery, and the nurse is now at work in the hospital. (Figs. 4 and 5.)

I submit that in such conditions there is a good field for sound surgery. What is the result of long retention of pus within the chest? A favourable issue may follow if the patient is able to spit up the pus, or if the lung becomes sufficiently collapsed and fibrosed to close the cavity; but at what expense to the patient! At the best it means a permanent partial disablement. Often the issue is not favourable, and a condition of chronic bronchiectasis supervenes with all its deplorable sequelae, which are too well known to require elaboration. Should it not be accepted that, in the event of the trial and failure to find pus by the ordinary methods of clinical diagnosis, a deliberate and planned exploration of the chest by open operation should be undertaken? In my opinion such an exploration can now be done with safety, and there is no more reason for allowing pus to remain pent up if it happens to be in the chest than if it were in the abdomen. Exploratory abdominal operations have now become of everyday occurrence, and I can see no reason why exploratory thoracotomy should not become equally familiar to general surgeons.

Another type of case which can be benefited by surgery is the chronic discharging sinus which refuses to heal. These are most distressing cases, which, if left alone, tend to get worse and worse and finally die of tuberculosis, amyloid disease, or bronchopneumonia. The old and rather mutilating operation devised by Estlander may very well be replaced by that known as decortication, which Tuffier has done much to popularize. This operation, if deliberately planned and carried out at a reasonably early stage before fibrotic changes have rendered the lung permanently incapable of expansion, may be expected to yield good results. The following history will illustrate my meaning.

A boy (W. J.), aged 8, had pneumonia in the spring of 1923, followed six weeks later by a left-sided empyema. This was treated at first by aspiration, and then by incision and drainage, but the sinus refused to heal. The left side of the chest became flattened, air entry was poor, the fingers showed well marked clubbing, and there was a constant cough with some sputum. Six months after the occurrence of the empyema a deliberate operation was performed for the relief of the imprisoned lung, which was bound down and prevented from expanding by dense fibrous tissue. This was accomplished by the sacrifice of three inches of the seventh and eighth ribs; a layer of thick fibrous tissue was dissected off the lung, which immediately began to expand. Two months later the boy left hospital, healed, with a good functioning lung. The accompanying pictures will show you the condition before operation and nine months later. (Figs. 6, 7, and 8.)

Tumours of the chest do not offer a great field for exploration because they are more often than not malignant, and no further reference need be made to them now.

Innocent tumours, though of much rarer incidence, are found from time to time. They may be fibromata or lipomata, and if not removed may give rise to serious, and indeed fatal, results.

Mr. Dunhill has reported the case of a man, aged 37, from whom he removed a fibroma, weighing 1 lb. 3½ oz. and measuring in the greatest diameter 13½ cm. It was situated in the upper part of the mediastinum and bulged into the right side of the chest. The prominent symptoms were increasing and crippling dyspnoea, cyanosis of the head and neck and upper extremities, and oedema of the right arm. The tumour was completely and successfully removed by an operation by the trans-sternal route, and the patient has had no further trouble.[4]

Amongst the rare intrathoracic tumours mention must be made of teratomata. A considerable number of cases have been described, most of which have been in the mediastinum, though others have occupied one or other of the lungs. These have been well described by Sir Rickman Godlee.[5]

The following pictures demonstrate the condition of a patient at St. Bartholomew's Hospital who had an extraordinary mediastinal tumour which involved the pericardium.

A male (A. A.), aged 21, was seized with a sudden severe attack of pain in the chest, accompanied by great shortness of breath. Physical signs and *x* rays revealed the presence of a large pericardial effusion and a tumour situated in the upper part of the left side of the chest, and apparently attached to, or pressing against, the heart. Temporary ease was afforded by pericardial paracentesis, but as the condition did not improve and dyspnoea was distressing, it was decided to explore the chest by open operation with the idea of removing the tumour. The trans-sternal, or sternum-splitting, operation was chosen as admitting the best exposure of the upper mediastinum. A large thick-walled cyst was discovered containing some 1,200 c.cm. of dark greenish fluid. It was situated in the mediastinum and was adherent to both the pleural and pericardial membranes. The reason for the pericardial effusion was probably due to a leakage from the cyst into the pericardium. The cyst was emptied, a large portion of the thick wall cut away, and the remainder marsupialized. Perhaps with a little more courage the whole of the cyst might have been dissected out. Recovery was uneventful. The histological examination showed the tumour to be a teratoma, containing cartilage and hypoblastic elements. Professor T. R. Elliott, who sent me the patient, has described the case fully at a meeting of the Association of Physicians. (Figs. 9, 10, and 11.)

There still remains the subject of hydatid cysts. This condition, though luckily rare in England, is a most serious complaint and likely to be fatal. The accompanying picture illustrates the condition, and I am indebted for the notes of the case to Dr. C. R. Hoskyn.

The patient was a male, aged 41, who sought relief on account of vomiting and persistent blood spitting. The physical examination and *x* rays showed the presence of a mass in the right side of the chest. Scolices were found in the sputum, which continued to be blood-stained. An operation was performed and the cyst was removed, but great difficulties were encountered on account of a communication between the cyst and one of the large bronchi. This unfortunate complication probably accounted for a severe bronchitis or bronchopneumonia, to which the patient succumbed three days later.

After this review of what has actually been accomplished, I think it may fairly be considered as proved that certain types of injury and disease of the thoracic viscera may be well and successfully treated by open operation, that the method adopted is a sound one, that it gives encouraging results, and is worthy of general consideration. It has also been demonstrated that the chest can be opened under general anaesthesia, and that the operative technique, though by no means incapable of improvement, is so far advanced as to justify the belief that with increased experience we may hope for still further developments in the near future.

Let us try now to take a more speculative view of the question and consider what are the possibilities of extending the knowledge and experience that have been gained towards the treatment of other diseases of the chest.

A question that is constantly being asked is whether something could not be done for tuberculosis of the lung, and whether it would not be possible to excise the whole or a portion of a diseased lung. This question has proved tempting to many surgeons. As long ago as 1881 it was shown by Gluck, Schmidt, Bloch, Biondi, and others that, in animals, portions or the whole of a lung could be removed without necessarily causing death. On the strength of these experiments a number of operations for the removal of portions of lung affected by tuberculosis were undertaken.[6]

Although one or two favourable results were reported, including one by Macewen, who, in 1897, removed the whole of one lung for massive disintegrating tuberculosis,[7] the method could not be judged a success. The considered judgement of Sir Rickman Godlee, writing in 1898, is worth quoting:

"With regard to these operations it must be said that they do not seem likely ever to have a very wide application; not only because it is very difficult to be sure that the part on which it is proposed to operate is the only one affected, but also because, in the early stage in which alone surgical interference would be justifiable, there is a fair chance of effecting a cure by other less hazardous measures."

These words are as true now as on the day they were written, and the older one grows the more it becomes evident that the problem of tuberculosis is not to be solved by surgical methods. The disease is preventable, and one must look to hygienists and the Ministry of Health to give us healthy conditions, or to pharmacologists to produce a drug which will kill the bacillus. It is tempting to make some reference to the new remedy which is now under trial, but this is neither the time nor place. Mention, however, should be made of subsidiary methods of surgical treatment which may be of help in those cases of established tuberculosis which will not yield to medical means. I refer to the operation of thoracoplasty, which is designed to bring about collapse of a lung when, owing to adhesions, an artificial pneumothorax cannot be obtained.[8] This operation, which has recently received a stimulus from the excellent work of our Scandinavian colleagues, is of undoubted value in certain selected cases. In this connexion it is interesting to remember that the operation was discussed by Macewen as long ago as 1897 at the International Congress of Medicine: a remarkable prognostication.[7]

A recent interesting development comes with the invention of a thoracoscope, by which the interior of the pleural cavity may be examined and through which adhesions may even be divided.[9] [10]

Passing from tuberculosis, I now come to the vexed subject of bronchiectasis, and here I confess to great difficulty in knowing what to say. Should one aim at the removal of one or more affected lobes of a lung? It can undoubtedly be done, and it has been done and patients have survived.[11] There do not appear to be any difficulties adherent to the operation which should make the method impossible of being developed, in suitable cases. The difficulty, as it appears to me, is that at present we do not really understand the pathology of the disease, and the probability is that there are a number of conditions which may produce the same result. I would suggest that this is a suitable subject for research, and that when the accurate details of the pathology of the condition have been established then we shall have a sound basis for effective treatment. If it is allowable to venture on a prognostication, it is that in the greater proportion of instances it will be found that bronchiectasis could be prevented from occurring, and that surgery will take but a small part in its treatment.

This speculative survey of the realm of chest surgery would not be complete without some reference to the surgery of the heart. There are plenty of references in surgical literature to sporadic operations on the heart—mostly for conditions the result of wounds or foreign bodies lodging in the wall of the ventricle—but little has been done for diseased processes. For many years suggestions have been made that valvular disease of the heart attended with stenosis of the apertures might be treated by division of the obstructing membrane. It was suggested long ago by Brunton, who was laughed at for his temerity. Now quite recently we find that the operation has actually been done successfully by Cutler of Boston. His first patient is living, and apparently improved, one year after the operation.[12]

I have tried to place before you a few things which have been accomplished and many things which have yet to be

done: that they can be done is sure. May I conclude with these words of Bacon:

> "Men, till a matter be done, wonder that it can be done; and as soon as it is done, wonder again that it was no sooner done."

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THE PATHOLOGY AND TREATMENT OF GENU VALGUM.

BY

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(*With Special Plate.*)

THE HISTORY OF THE INVESTIGATION.

In 1897, when we began to take skiagrams, I had one made of the knee-joints in a case of genu valgum, for the purpose of demonstrating the elongated internal condyle, which most of us believed, at that time, invariably produced the deformity. Instead of showing any change in the lower end of the femur, the skiagram showed that the genu valgum was due, to a large extent at any rate, to a deflection outwards of the upper end of each tibia. Certainly the exact shape of the lower end of the femur could not be determined, as the epiphysis was only imperfectly ossified, but there was nothing in the appearance of the skiagram to suggest that an elongation of the internal condyle existed, or any obliquity of the knee-joint, whereas the deformity in the tibia was quite enough to account for the genu valgum. I published[1] an account of the skiagraphic appearances at the time, and then Mr. Muirhead Little and the late Mr. Noble Smith called attention to the fact that, even without the aid of skiagrams, they had described deformities in the leg bones, rather than in the lower end of the femur, as a cause of genu valgum. Indeed, the latter surgeon had stated that he considered these curvatures in the leg bones, and not elongation of the internal condyle, were the usual cause of genu valgum. In 1898 I published[2] a paper, describing these curves in the leg bones, as revealed by skiagrams, and advocated osteotomy of the tibia, rather than of the femur, and in 1902 delivered a lecture at the Post-Graduate College and Polyclinic, in which I further described the condition of the bones in genu valgum, and considered more fully its treatment, both operative and non-operative. This lecture was published in the BRITISH MEDICAL JOURNAL for 1902 (vol. i, p. 1527). In it I have illustrated the various forms of deformity present in the leg bones which cause genu valgum.

This present paper is based on a study of 51 records of the skiagraphic appearances of genu valgum, which I possess, representing the appearances of about 100 limbs (for the skiagram almost invariably represented both limbs). I have also a very large number of the prints of these skiagram negatives, preserved. These 51 records are all that I possess, with the exception of three which are of no value for the present inquiry. They are: (1) a second skiagram taken two years after the first; (2) a relapse after osteotomy; (3) a case which had been previously operated on by another surgeon.

FREQUENCY AND RELATIVE PROPORTION OF THE CHANGES IN SHAPE OF THE LEG BONES AND THE LOWER END OF THE FEMUR.

In 36 of the 51 cases the epiphysis at the lower end of the femur was not sufficiently ossified to be certain of its shape from the skiagraphic appearance, but in all these cases there was sufficient deformity in the leg bones, revealed by the skiagram, to account for the genu valgum: and although it is not possible to say for certain that there is no change in shape in the lower end of the femur, yet in many one can be almost certain the knee-joint has not been made oblique, instead of transverse, by an abnormal descent of the internal condyle. Fig. 1 is a good illustration of this group. In 15 cases ossification of the lower epiphysis of the femur has proceeded far enough to be sure whether the line of the knee-joint is transverse or oblique—that is, whether the internal condyle descends abnormally low or not. In 4 of these cases it is obvious that there is no change in the shape of the condyle, and that the knee-joint remains transverse, and therefore that the genu valgum is wholly due to the curvature, or deflection outwards, of the tibia. Fig. 2 is a good illustration of this group. In 5 cases the descent of the internal condyle was very slight, and the genu valgum was clearly mainly due to the curvature of the leg bones. Figs. 3 and 4 illustrate this group. In Fig. 3 a very slight descent of the internal condyle is seen, but Fig. 4 of the leg bones shows that the genu valgum is more due to a deflection out of the shaft of the tibia from just below the head.

In 6 cases the genu valgum is about equally due to an abnormal descent of the internal condyle with obliquity of the knee-joint, and to curve, or deflection out, of the shaft of the tibia. Fig. 5 is a good illustration of this group. Fig. 6 represents the other limb, in which the genu valgum seems to be more due to deformity in the lower end of the femur than to the curve in the leg bones, but this is because the skiagram is taken with the femur abducted. The shaft of the femur, if prolonged above the skiagram, would not ascend parallel to the inner edge of the skiagram, but obliquely, upwards and inwards. The genu valgum in the skiagram of this limb appears greater than in the other limb, because the limb is abducted, but it will be seen in Fig. 7 that the genu valgum is practically equal in the two limbs. Fig. 7 shows the lower limbs in this case.

FIG. 7.—Represents the lower limbs of the patient from whom skiagrams 5 and 6 were taken.

I have one skiagram in which the genu valgum is wholly due to deflection out of the tibia in one leg, and equally due to this deformity and an abnormal descent of the internal condyle in the other leg. I have never seen a case in which the change in the bone causing the genu valgum was greater in the lower end of the femur than in the tibia.

The proportion of deformity may alter as the case progresses. I have the record of a case in which, at the age of 14, the deformity was almost wholly in the leg bones, whereas, two years later, another skiagram showed the genu valgum was equally due to deformity in the femur and the leg bones. One case does not of course indicate that, as age advances, the change in the femur becomes more marked in proportion to that in the leg bones, but it is suggestive, and an examination of more skiagrams to decide the point would be interesting.

THE CHANGES IN THE SHAPE OF THE LEG BONES.

The various forms of deformity of the tibia causing genu valgum were described by me in the lecture already referred to, and are represented in diagram 3 of the published lecture, and need not be reproduced in this paper, but Figs. 8, 9, and 10 give a good idea of the common forms of such deformity. In some cases there is a distinct curve out of the shaft of the tibia from just below the head, in others no definite curve, but a sharper angular deflection out, from about one inch below the head, and in others a gradual deflection out of the shaft

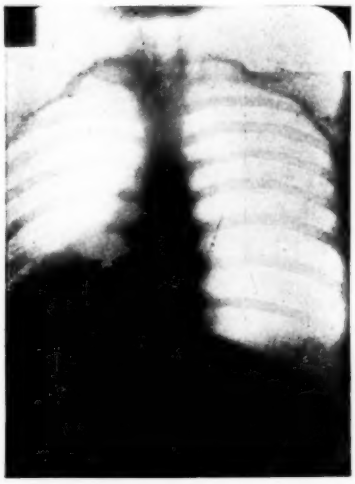

FIG. 4.—Nurse P An interlobar abscess with dense fibrous walls.

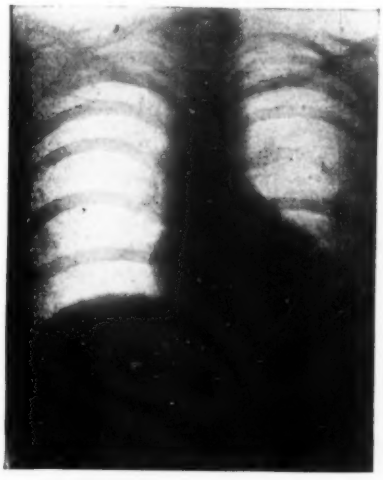

FIG. 5.—Same patient, five years later, showing complete restoration of function, after decortication.

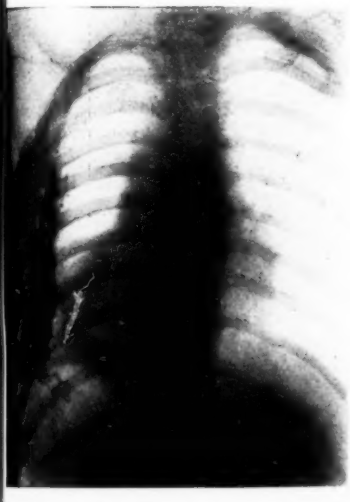

FIG. 6.—W. J. Chronic empyema sinus filled with bismuth.

FIG. 7.—Photograph of same patient nine months later, after decortication.

FIG. 8.—Same patient, showing restoration of function.

FIG. 9.—A. A. Mediastinal teratoma with large pericardial effusion.

FIG. 10.—Same patient, showing air in upper pericardium.

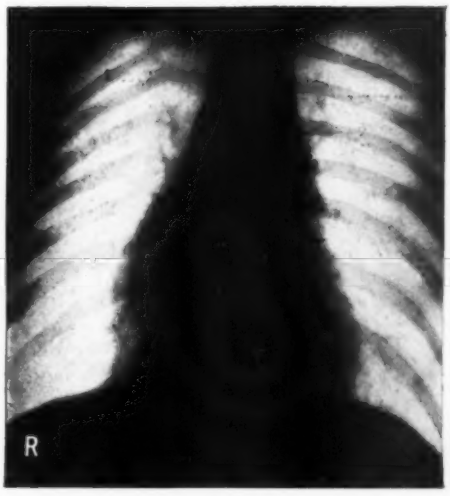

FIG. 11.—Same patient, showing condition two months after operation.

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

FIG. 8.

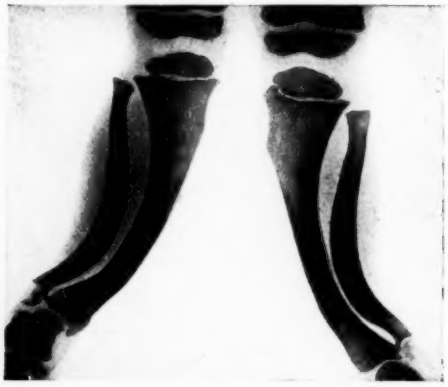

FIG. 9.

FIG. 10.

FIG. 11.

FIG. 12.

FIG. 13.

FIG. 14.

from just below the head. All these various types are represented in the diagram published in my paper in 1902. In the form in which there is a sharp angular deflection out of the shaft, about one inch below the head of the tibia, the angle may be so marked as to cause a definite projection, or spur, on the inner aspect of the bone (Fig. 9). This spine on the inner aspect of the shaft of the tibia, in cases of genu valgum, has been attributed to the strain on the attachment of the internal lateral ligament of the knee-joint. In some cases it may be so, and its production in this way is suggested by the appearance in the skiagram, in some cases, of a small surface production of new bone; but in other cases the spine is clearly seen in the skiagram to be simply an angular projection of the shaft at the seat of greatest deformity.

In some cases, of which Fig. 11 is an example, there has been a curious correction of one curve by another. There has perhaps been a curve out in the upper part of the tibia which, if not corrected, would have produced genu valgum; and yet another curve is present, nearly correcting, correcting, or even overcorrecting, the upper curve, and producing in the final result a certain amount of genu varum. Or there may be a curve in the lower end of the femur producing genu varum, and this may be corrected by the presence of another curve in the leg bones, which corrects the femoral curve, but if present alone would have produced genu valgum. This condition is illustrated in the left limb in the skiagram, Fig. 12. In the right limb genu varum is present, due to femoral curve. In several cases there has been a combination of curvature of the leg bones outwards, producing a marked degree of genu valgum, and an antero-posterior curve of the leg bones, producing the ordinary bow legs.

DESCRIPTION OF SPECIAL PLATE.

FIG. 1.—To show curves in leg bones. The epiphysis at the lower end of the femur is not sufficiently ossified to indicate the shape of the lower end of the femur, but it seems almost certain that if the knee-joint is oblique it is oblique in the opposite direction to that which would produce genu valgum; probably it is transverse and there is no deformity of the lower end of the femur.

FIG. 2.—The knee-joint is transverse and there is no deformity in the lower end of the femur, the genu valgum being due wholly to the deflection outwards of the shaft of the tibia. (The picture is made of two separate skiagrams joined together where the light transverse line is seen. It was not possible to get the lower end of the femur and so much of the tibia on one plate.)

FIG. 3.—There is a very slight abnormal descent of the internal condyle and obliquity of the joint, but Fig. 4 shows that the genu valgum is more due to a deflection out of the shaft of the tibia combined with a slight fibula curve.

FIG. 4.—Same case as that shown in Fig. 3.

FIG. 5.—In this limb the genu valgum is about equally due to the deformity in the lower end of the femur and to the curve in the tibia; but in the other limb (Fig. 6) it seems to be more due to the deformity in the lower end of the femur than to the curve in the tibia, but as explained in the text this is only apparent.

FIG. 6.—Same case as that shown in Fig. 5.

FIG. 8.—A common form of curve in the leg bones.

FIG. 9.—A more angular deformity of the tibiae in the upper part, on the inner side, producing in the left limb a tibial spine.

FIG. 10.—The curve in the fibula in the left leg is very slight in the upper half, but very marked in the lower; does not correspond to the form of the tibial deformity.

FIG. 11.—In the right leg there is a curve of the tibia out in the upper part which, if not corrected by a curve in, in the lower, would have produced genu valgum. In the left leg there seems to be a tilting of the lower end of the femur, which would have caused genu varum but for the curve out at middle of tibia. This is again corrected by a curve in in the lower part.

FIG. 12.—In the right leg deformity is present at the lower end of the femur, producing genu varum. In the left leg the same condition, but corrected by curve out of leg bones at middle. This, if present alone—that is, without the condylar deformity—would have produced genu valgum.

FIG. 13.—The tilting out of the condylar part of the femur, causing abnormal descent of the internal condyle and oblique knee-joint, combined with curvature of the tibia, which also contributes to the causation of the genu valgum. This is the skiagram of the case shown in Fig. 18.

FIG. 14.—To show the same condition of condylar part of femora as in Fig. 13. In Fig. 14 the lower ends of the femur, the knee-joints, are seen; in Fig. 13 the leg bones are also seen. All these skiagrams are from the same case.

The condition of the fibula varies very greatly. In some cases, in which the skiagram shows only the upper half of the bone, it is straight, even though there is a marked deformity of the tibia, causing the genu valgum. Figs. 2, 6, and 13 are good illustrations of this. But it is possible that in these cases the fibula is curved out in its lower part, which is not represented in the skiagram, for other skiagrams which show the whole bone indicate that the fibula, though straight in the upper part, yet may curve out in the lower. In some cases of genu valgum the curve out of the fibula in the upper part of the bone is seen to be as marked as that of the tibia; and in some skiagrams, whereas the tibia is deflected outwards from just below the head, without any distinct curve, yet the fibula presents a very distinct curve out in its upper part; in others, again, both bones are gradually deflected outwards, without distinct curve in either.

THE CHANGES IN THE SHAPE OF THE LOWER END OF THE FEMUR.

The change in the lower end of the femur, which is partly a cause of the genu valgum in some cases, has been described as an elongation of the internal condyle of the femur, and this was considered by Mikulicz to be due to an increase in the diaphyseal part of the condyle, rather than the epiphyseal. I do not believe there is any change in the shape of the internal condyle itself, but I consider that the internal condyle is pushed downwards, and the obliquity of the knee-joint thus produced, by a change in shape of the whole condylar part of the lower end of the femur. In a study of skiagrams of these cases, the condylar part is seen to be tilted outwards at its junction with the shaft, so that the relative level of the condyles is altered, and the internal one descends lower than the external. Figs. 5, 6, 13, and 14 show this change in the lower end of the femur very clearly, and the resulting obliquity of the knee-joint. If a careful study is made of skiagrams in which the abnormal descent of the internal condyle is marked, it will be noticed that the outline of the outer aspect of the femur, at the junction of the shaft and condyles, is altered. It is more curved in an outward direction than in the normal bone, in which there is a more marked curve at the junction of the shaft and condylar portion of the bone on the inner than the outer side, but in these cases of genu valgum with abnormal descent of the internal condyle to a marked degree there is a markedly greater curve on the outer aspect.

Although in the lecture published in 1902 I called attention to the explanation why the deformity of genu valgum disappears on flexing the knee, it may be well to repeat it here. It has been suggested that it is because the articular surface of the tibia rides off the elongated internal condyle on to its posterior aspect, but it is really due to an external rotation of the limb which the surgeon unconsciously performs in flexing the knee. External rotation of the limb tends to mask the genu valgum, and in flexing the limb of a genu valgum patient the surgeon unconsciously rotates it out. If great care is taken that in flexing the knee it is not also rotated out, the genu valgum is not corrected.

THE NON-OPERATIVE TREATMENT.

I need not repeat in this paper what I said in 1902 about the futility of attempting to reduce the deformity of genu valgum by the application of splints, in out-patient treatment, as a means of moulding the bones into a better position, though no doubt splints or irons, by supporting the soft bone, may allow Nature a better chance of rectifying the deformity as the bone grows. Since that time I have in one case made an attempt to really mould the deformed bones straight by splint traction. As I pointed out in 1902, it is impossible, in out-patients, to apply splints so as to exercise enough continuous pressure on the bones to mould them. But I admitted a girl, aged 9, into the Children's Hospital, and made traction on the deformed bones, watching very carefully that the traction was really constantly maintained, and that it was not producing any pressure sore. I did not adopt the plan of fixing the limb

against an outside splint and making traction against it, as is usually done, for, as I pointed out in my lecture in 1902, pressure applied in this direction is not as desirable as traction applied so as to draw the displaced lower part of the leg inwards, which, if it acts at all, will restore the original shape of the bones. I therefore fixed the leg, the knee, and the lower part of the thigh, on a combination of a back and outside splint, and made elastic traction on the leg in the neighbourhood of the ankle, towards the inner side, by a rubber accumulator. It required constant care to see the limb did not in any way shift on the splint, and that no pressure sore was produced (Fig. 15). There was 3½ inches of genu valgum in the limb when placed on the splint, and I was able to reduce it to 2 inches in six weeks. This was too slow a process to induce me to adopt this line of treatment, for by an operation, practically free from risk, I could with certainty have corrected the whole of it, and need not have kept the child confined to bed for so long a time.

FIG. 15.—Showing application of traction to lower part of leg to overcome the genu valgum.

THE POSITION FOR OSTEOTOMY.

Since I described the method which I adopted for operation on the leg bones in genu valgum in 1902, I have had considerable further experience of it. If the genu valgum is shown by a skiagram to be due entirely to a deformity of the leg bones, or if the deformity of the leg bones is shown in the skiagram to be sufficient to account for the deformity, the condition of the lower end of the femur not being sufficiently ossified to enable the surgeon to be sure as to abnormal descent of the internal condyle, I operate only on the leg bones, and the result is usually quite satisfactory. Figs. 16 and 17 show such a case before and after operation. It would be quite possible in such cases to correct the genu valgum by an osteotomy at the lower end of the femur (Macewen's osteotomy), but the result would be that the knee-joint, which was transverse (normal) before the operation, would have been rendered oblique, with an abnormal ascent of the internal condyle, which cannot be a satisfactory condition of the joint for locomotion. I admit that a transverse osteotomy of the femur just above the condyles is a simpler operation than removal of a wedge from the upper end of the tibia, but the latter operation corrects the deformity of the bone producing the genu valgum, whereas an osteotomy of the normal lower end of the femur corrects it by producing a new deformity in the previously normal lower end of the femur. Of course, I am writing only of cases in which the genu valgum is not due to deformity of the lower end of the femur. When it is due to this, clearly an osteotomy there may be indicated.

FIG. 16.—Case before cuneiform osteotomy of upper end of tibiae.

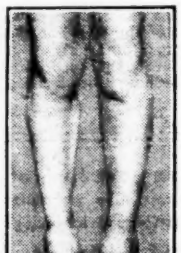

Fig. 17.—The same case as that shown in Fig. 15, after operation.

If a skiagram shows that though there is some abnormal descent of the internal condyle, yet the genu valgum is due much more to curvature of the leg bones, I think we may ignore the condition of the lower end of the femur, and overcorrect the deformity of the leg bones, to make up for the remaining deformity of the femur, though no doubt the ideal operation in all such cases would be to do a double osteotomy, one correcting the deformity of the lower end of the femur, and the other of the tibia, and possibly a third of the fibula also. In cases in which the genu valgum is extreme, and about equally due to abnormal descent of the internal condyle (or, as I should prefer to call it, to a bending out of the condylar part of the femur), I have practised osteotomy both of the femur and the tibia. I treated in this way the patient whose genu valgum is shown in Fig. 18 before operation, and in Fig. 19 after operation; Figs. 13 and 14 show the skiagrams of this case. Fig. 14 was taken to show the condition of the lower ends of the femora and the knee-joints, and Fig. 13 the leg bones on one side. It was the worst case of genu valgum I have ever seen, and there were 17 inches between the feet when he was standing, but even this measurement does not represent the total amount of genu valgum, as he had to overcome a certain amount of it, by rotation out of the lower limbs, before he could stand at all, and that he might be able to do this he stood and walked with a certain amount of flexion of the hips, as is seen in the photograph. But if the combined deformity in the lower end of the femur and the tibia does not produce an extreme degree of genu valgum, I am generally content to perform a transverse osteotomy of the lower end of the femur, or a cuneiform osteotomy of the upper end of the tibia, according to the relative amount of deformity in each.

A good deal of discussion has taken place as to the age when osteotomy should be performed for rickety deformities, including genu valgum, and some surgeons have advised that it should not be performed in young children because of the tendency to relapse owing to the persistence of the softness of the bone. I think it is well to have a definite guide as to the probability of relapse in all cases before undertaking osteotomy; and it has been my practice for many years to take careful charts of the deformity and careful measurements of the degree of the genu valgum, and then to let the children run about freely for six months, and at the end of this time to compare the limbs with the chart and take a fresh measurement of the genu valgum. If there has been no increase of the deformity then the surgeon has a good indication that he may perform an osteotomy without fear of relapse. It is naturally considered that if there is any enlargement of the epiphyseal junctions present, indicating an active stage of rickets, it should be a contraindication to osteotomy. But it does not seem to be so, at an rate in some cases in which it has persisted for a considerable time, for I have applied the chart and measurement test to such cases and found the

FIG. 18.—The case referred to in the text of 17 inches and more of genu valgum. Fig. 13 shows the skiagram of this case.

FIG. 19.—The case shown in Fig. 18 after combined osteotomy at the lower end of the femur and cuneiform osteotomy of the upper end of the tibia in each limb.

deformity was not increasing, and then performed osteotomy without, at any rate, early relapse.

THE NATURE OF THE OSTEOTOMY.

With regard to the nature of the osteotomy I have performed in cases of genu valgum, all I need say with regard to the operation on the lower end of the femur is that I prefer to divide the bone with an Adams saw from the outer side, rather than by Macewen's method. I have performed a cuneiform osteotomy of the upper end of the tibia for genu valgum in forty-six limbs, combined in several cases with osteotomy of the fibula, and the correction has usually been quite good (see Figs. 16 and 17, showing photographs of a case before and after this form of osteotomy). In the great majority of these cases there has been no division of the lower end of the femur, but an osteotomy of the femur has also been performed in a few cases because the genu valgum has been due to a deformity of the lower end of the femur as well as in the leg bones. In a few of my earliest cases I made a linear osteotomy of the upper end of the tibia, but I soon realized that removal of a wedge was desirable. A study of the skiagrams will indicate the best position for the removal of the wedge. This is usually quite high up, just below the head of the tibia, but in a few cases, where we have to deal with a curve more uniformly affecting the whole shaft, it has to be removed at a lower level, and in one case of an unusual form of curvature I had to remove two wedges at different levels. In my description of the operation in my former paper[3] I referred to the opinion held by surgeons that a cuneiform osteotomy of the upper end of the tibia was a more dangerous operation than a linear osteotomy of the lower end of the femur, because of the danger of wounding the anterior and posterior tibial vessels and nerves, which lie in such close proximity to the bone where the wedge is removed. But I described how, by a very careful method of removal of the wedge, injury to these structures could be avoided, and in the forty-six cuneiform osteotomies I have now performed no injury of these structures has taken place. If the surgeon, either with an Adams saw or a chisel and mallet, cuts freely right through the thickness of the bone, he will be in great danger of wounding either the anterior tibial vessels in the anterior interosseous space, or the posterior tibial vessels and nerve on the posterior aspect of the tibia. The only safe way is to saw out a wedge from the compact tissue of the superficial aspect of the tibia, and then, as I pointed out in my previous paper, the bone must be further removed in pieces, with great care, so as not to run any risk of carrying the chisel, or the point of the Adams saw, beyond the bone, and wounding any of the soft structures around. In removing this cancellous bone, and the posterior compact layer, it is not possible exactly to maintain the wedge shape of the removal of the superficial compact layer, but the space left is sufficiently wedge-shaped throughout the entire thickness of the bone. In many cases the deep layer of the bone was so cautiously removed that the periosteum on the outer and deep aspect of the wedge space was not divided.

The breadth of the base of the wedge must, of course, correspond to the degree of curvature to be corrected. On a careful examination of the skiagram this may be determined, but the most accurate way is to make a paper chart of the deformed bone, as shown in the skiagram, and then to remove from it a wedge which will just correct the deformity, and note the breadth of the base of this wedge. It is always better to remove too little than too much bone, for it is easy, when once a wedge has been removed, to increase its size by taking a further slice off the bone, for with the ends of the bones separated this can be done by one cut of the saw, the soft parts on the deeper and outer aspects of the bone being protected by a copper spatula. But if too wide a wedge has been removed there will be a great risk of overcorrection of the deformity and the production of a certain amount of genu varum. The test as to whether a sufficient amount of bone has been removed is that when the sides of the wedge space are brought in contact the genu valgum is wholly corrected. Nothing short of this will suffice.

In my paper published in 1902 I advocated the removal of a wedge which was not transverse, but the apex pointed obliquely upwards. I have since found that a transverse wedge is better, and certainly easier to remove. The base of the wedge should correspond to the inner border of the bone, and a line, which would be at right angles to that surface, if it were straight and not somewhat curved, should pass through the centre of the wedge transversely across the bone. I have generally fixed the anterior edge of the wedge space together with a few catgut sutures, either passed through the periosteum or through holes drilled in the edge of the bone. This is not essential, as if the limb is put up on the splint in the fully corrected position, and carefully maintained in that position, the sides of the wedge space will come together if the right amount of bone has been removed, but it will ensure that the sides of the wedge space are approximated, and is, I think, an advantage.

The important question has to be considered as to whether, in addition to removal of a wedge from the tibia, it is also necessary to divide the fibula. I have already described the skiagraphic appearance of the fibula, and pointed out that it may be straight in the upper part, even if the tibia at that level is much curved; but in these cases it is always possible that there may be a curve out at the lower end, for in the less common cases in which the whole fibula can be seen in the skiagram it may sometimes be noted that although the upper part is straight such a curve exists at the lower end. Both in cases in which there is no curve in the fibula in the upper part, corresponding to the curve in the tibia at this level, and in those in which a marked curve is present in the upper part of the fibula, it may be quite possible to rectify the deformity completely by a cuneiform osteotomy of the tibia alone, and I have done this in many cases. In the case shown in Figs. 16 and 17, before and after cuneiform osteotomy of the upper end of the tibia, the deformity was completely corrected without any division of the fibula. After the wedge has been removed from the upper end of the tibia, and before the fibula has been divided, even when the bones can be placed in a perfectly corrected position, I have sometimes noticed that there has been a tendency for the bones to spring back into the old genu valgum position to some extent, and I have then divided the fibula for the purpose of overcoming this, but I have not thereby succeeded in all cases. The more cuneiform osteotomies of the tibia I have performed for genu valgum, the more have I tended to dispense with division of the fibula, even in cases in which a marked curve was present in that bone.

I think if the fibula has to be divided, the ideal place for division, having regard only to the correction of the deformity, would be at the same level as the tibia, but here it is in such intimate relation to the external popliteal nerve, and a little lower to the nerves into which the external popliteal nerve divides, that I have never attempted division here. In one of my early cases I divided the middle of the fibula, which was the seat of greatest curvature in that particular case, but I found the curvature had brought the fibula so abnormally close to the tibia, and so little room was left in the anterior interosseous space, that the danger of wounding the vessel and nerve there was very great. Since then, whenever I have divided the fibula I have done so where it is fairly superficial—that is, in the lower part, not far above the external malleolus, where there is much less danger of wounding the structures in the anterior interosseous space in cases of marked curvature of the fibula approximating it to the tibia in the middle of the leg. I have in many cases divided it at this level, and even excised a quarter or a third of an inch from it, and I have considered that this has enabled me to correct marked deformity, which the cuneiform osteotomy of the tibia did not allow of. So that I think I may say that though in some marked cases division of the fibula is a distinct aid in correction of the deformity, yet in most cases it is not required.

I have found the use of the special splint which I described, and figured, in my paper in 1902 of very great value in maintaining the limb in the fully corrected position; and, as I pointed out in that paper, it is desirable to support the leg bones under the seat of osteotomy with

a pad, because there is a tendency to sinking backwards of the divided bones at that level.

In several cases in which I have found the curvature in the leg bones producing the genu valgum combined with an antero-posterior curve of the tibia producing the ordinary deformity of bow legs I have had to deal with such a combination of deformity by a double osteotomy—the removal of a wedge from the upper end of the tibia for the correction of the genu valgum, and removal of a wedge from the lower part of the bone for the correction of the antero-posterior curve (in this position of course with the base of the wedge anteriorly).

REFERENCES.
[1] BRITISH MEDICAL JOURNAL, 1897, i, p. 1347. [2] Ibid., 1898, i, p. [illegible]. [3] Ibid., 1902, i, p. 529.

Lectures
ON
THE SYMPATHETIC INNERVATION OF STRIATED MUSCLE.*

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LECTURE III.—PART I.
THE PRACTICAL APPLICATIONS.

THE INCONSISTENT RESULTS OBTAINED BY OTHER INVESTIGATORS.

IN the second lecture attention was called to the evidence in support of the view that the two kinds of striated muscle fibres perform different functions. Only those innervated by the somatic medullated nerves are actively contractile and under the direct control of the will. The slender fibres innervated by the sympathetic non-medullated nerves are not contractile (although their length is passively altered by the activity of the contractile fibres alongside them): their function is to establish plastic tone, to support and maintain the more active and easily exhausted contractile fibres and relieve them of much of the work that would otherwise induce the rapid onset of fatigue.

When the grey rami of the sympathetic distributed to skeletal muscle are stimulated the muscles supplied show no sign of shortening (Bayliss[18]). But, of course, this is to be expected if the sympathetic innervation is reponsible for plastic tone of skeletal muscle. The result of appropriate stimulation would be to fix the muscle fibres governed by the sympathetic system at their existing length. Obviously, therefore, athetoid movements or intermittent spasms of muscle, which depend upon the process of shortening of muscle fibres, are not dependent upon the sympathetic innervation of the muscle groups affected. No appreciable improvement of these conditions follows sympathetic ramisection, and their presence is, in general, a contra-indication to the performance of the operation. However, if marked improvement or loss of these features takes place, any remaining rigidity, which may be dependent upon the existence of plastic tone, may then be examined with a view to subjecting the patient to operation so as to enable further progress in education to proceed.

During recent years several writers have strenuously denied that any function of the sympathetic innervation of muscles had been demonstrated by experiment. It is hardly necessary, in view of the consistent results obtained by Langelaan and ourselves, to discuss in detail the reasons for the negative or inconsistent results obtained by other investigators. In some cases the negative results are due to imperfect denervation; in others to the fact that the observers were looking for an effect upon contractility, which, of course, they did not find. Our observations have been confirmed in the case of the dog by Foix,[19] an investigator who was clearly free from any bias in favour of the results that he obtained, apparently unexpectedly.

Moreover, there is the very positive evidence obtained by Orbeli and his collaborators, which was summarized in the BRITISH MEDICAL JOURNAL (September 20th, 1924, p. 534). Orbeli stated in 1923† that the direct influence of the sympathetic nerves on skeletal muscle is fixed beyond doubt; the ability of the autonomic fibres to alter the condition and constitution of muscle becomes transferred from a small organ, the heart, to the whole skeletal muscle, thus fulfilling the prophecy of the "chemical tonus" of Pflüger and the "trophic innervation" of Pavlov. The sympathetic system, which controls all the vital properties of muscles and secures for them the greatest use of their reserve strength, must also affect their tone and metabolism. In 1922 Orbeli's collaborator Ginetsinsky found that stimulation of the sympathetic while fatigue was beginning to develop or had developed (as the result of stimulating the motor nerve) gradually restored the function of the fatigued and contracted muscle. The effect begins after a long period of latency, increases gradually, and reaches a maximum soon after the cessation of the stimulation of the sympathetic. Moreover, it lasts a long time.

These results are complementary to and consistent with those obtained in our experiments, and by others, as to the effects of adrenaline on fatigued muscle. The only criticism I would suggest of the work done in the Leningrad Medical Institute is that attention has been concentrated too exclusively on the phenomena of fatigue; and no adequate recognition has been given of the fact that the supporting and fatigue-sparing function of the sympathetically innervated muscle fibres is constantly being performed in every action of any muscle.

I want now to consider two factors that have been responsible for much of the discrepancy in the results obtained by various experimenters.

Avoidance of the Effects of Asphyxia and of Anaemia of the Brain Stem.

It is clear from the argument of the second lecture that the results of loss of plastic tone would be more difficult to observe if any condition existed that would unduly increase the degree of contractile tone. As Dr. Royle[20] has pointed out, asphyxia of the animal would produce this effect. To avoid this complication he employed intratracheal anaesthesia and then oxygenated the animal freely as soon as decerebration was performed. If asphyxia tended to develop later—for example, when the tube in the trachea was too small—the rigidity of all four limbs in extension would become extremely marked, and differences in the tone of the hind limbs due to the loss of plastic tone on one side would be completely obscured. Removal of the cause of asphyxia would invariably remove the tendency for the display of such an exaggerated degree of contractile tone. In several recent papers Walshe has argued that minimal degrees of oxygen in like manner may lead to hyperexcitability of reflex arcs. Evidence is accumulating that this factor may account for "irritative" symptoms following central nervous lesions, as Royle and I have shown. But the effects of asphyxia and anaemia that are manifested as reflex hyperexcitability are foreign to the condition of tone exhibited in decerebrate rigidity. Like the state of spastic paralysis, this condition is to be regarded as being due to a release of function in the nervous system, following the removal of higher levels of nervous activity. The term "release" is employed in the sense advocated by Hughlings Jackson, and developed in the present century by the work of Head and his collaborators. It appears to me that Sherrington's method of decerebration, which should be done in the goat by section of the mid-brain under direct vision, is preferable, for the purpose of observing the presence or absence of plastic tone, to the method of decerebration by anaemia induced by tying the carotid and basilar arteries, which has been introduced by Pollock and Davis. While a preparation made by the method of these Chicago neurologists is unquestionably useful for observing the reflex activities of such an animal, it gives misleading results so far as tone is concerned. It is impossible to be certain in how great an area of the brain stem the cell stations are rendered hyperexcitable by a degree of anaemia that is insufficient to abolish function altogether.

* Delivered by Professor Elliot Smith at University College, February 2nd, 1925.

† [As the result of a conversation with Professor Orbeli last November I have made certain verbal modifications of his expressions as translated by Dr. Horsley Gantt in the BRITISH MEDICAL JOURNAL.—G. E. S.]

The Choice of Laboratory Animal.

The animal selected for our experiments, in the first instance, was the rabbit. Dr. Royle procured an excellent result in the diminution in tone of the hind limb of a spinal rabbit on the side from which the lumbar sympathetic trunk had been removed. This effect was not reproduced in subsequent experiments; and the failure was attributed to the difficulty in this animal of completely excising the sympathetic trunk on the selected side without injury or removal of the trunk of the opposite side. Therefore the goat was used for all our subsequent mammalian experiments. In the second lecture I have already explained why the goat is peculiarly adapted for this type of experiment. In contrast to the goat a carnivorous animal such as the cat shows a capacity for great and numerous variations in the degree of postural tone. The cat does not take up the extensor posture when placed in the supine position. Variation in the degree of contraction in its four limbs imposes varied attitudes upon it; and no doubt in the well oxygenated decerebrate cat the variations in the degree of rigidity of the limbs are to be accounted for in a like manner. Such variations in the degree and selective activity of contractile tone possibly render the effects of loss of plastic tone less apparent than would otherwise be the case and render an analysis of the exact defect in tone more difficult at the outset. For it must be borne in mind, in this connexion, that in the experiments recorded in the literature, practically all of which were performed on cats, differences were found in the degree of tone upon the two sides following unilateral sympathectomy, which was performed in some cases before, and in others after, decerebration. For instance, Dusser de Barenne observed a diminution in tone in five cases out of nine, after removal of the lumbar sympathetic chain. Uyeno found differences in the tone of the fore limb after removal of the ganglion stellatum on one side, but attributed the diminution in tone to sensory inhibition due to the wound on this side; but in Royle's experiments this explanation is not admissible. Consequently the problem presenting itself is not to explain negative results, but the inconsistency of the effects. I believe that the factors to which attention has been called in the foregoing discussion explain the failures encountered. This is especially the case when in the past investigators have been seeking to observe quantitative diminution of tone. I have attempted to show that contractile tone is well displayed after sympathetic denervation, and under certain experimental conditions may be present in an enormously exaggerated degree. It is only when qualitative changes due to the selective removal of plastic tone are looked for that the interpretation of effects in any such instance becomes clear.

The thesis maintained in these lectures (that plastic tone is a property of the sympathetically innervated fibres of skeletal muscle) no longer rests solely upon the evidence provided by experimental decerebrate rigidity. For the same effect as that which follows sympathetic denervation in the decerebrate animal is produced by sympathetic ramisection in human patients in those conditions of spastic paralysis which exhibit all the essential qualities of decerebrate rigidity.[21] The excessive plastic tone characterizing these conditions is removed by the operation of ramisection. The evidence that may be obtained by studying the character of the knee-jerk is of special interest. For in both decerebrate rigidity and in the types of spastic paralysis to which reference has been made, the execution of the knee-jerks, slow before the operation, became brisk in character. This is due to the rapid rate of relaxation of the extensor muscle after completion of the jerk contraction, which replaces the former tendency of the muscle to remain shortened ("shortening reaction") when contraction ceases.

THE SURGICAL OPERATIONS.

From the reports that have reached us Dr. Royle and I have been convinced that most of the failures have been due to two main causes: (*a*) the neglect to determine whether voluntary control and excess of plastic tone were present, and (*b*) faults in the technique of the operation, more especially the failure to cut the appropriate rami communicantes. The long discussion in this lecture (publication of which has been deferred to next week's JOURNAL) should make clear how to choose cases that are likely to benefit from ramisection.

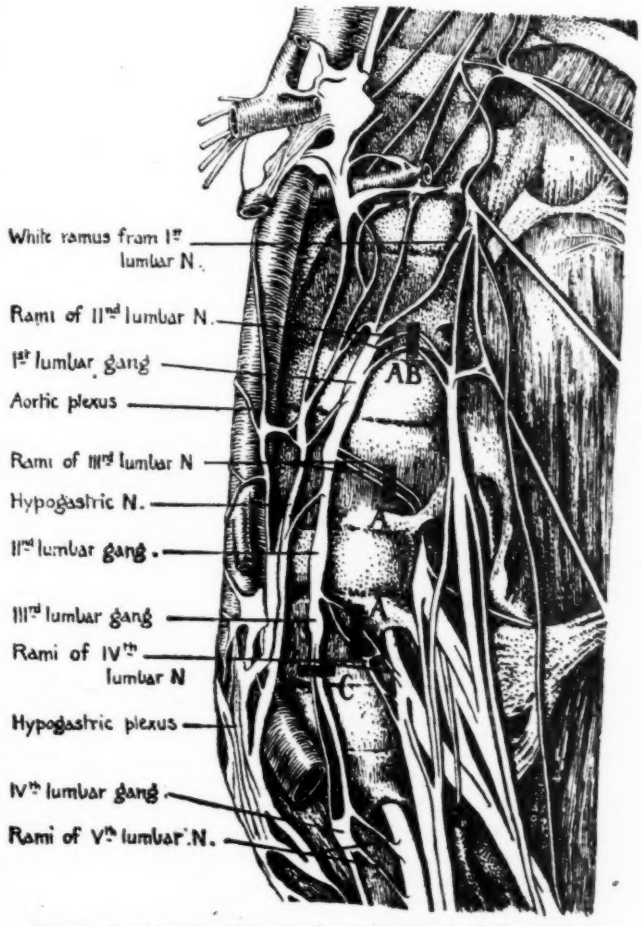

FIG. 8.—Drawing to represent the arrangement of the rami communicantes passing to the left lumbar nerves in man. After Dr. T. K. Potts. The black bars represent the places where avulsion is effected in the operation of "lumbar ramisection." The letters will facilitate the interpretation (with the help of Fig. 3), *A* being a grey ramus, *A B* a mixed ramus, and *C* the sympathetic cord.

The basic principle of the operation of sympathetic ramisection is that it removes plastic tone. It is only indicated when plastic tone is in excess and hampers the voluntary activities which have persisted in spite of the central lesion. A study of the nature of the spasticity of the spastic limbs, and an estimate of the anatomical defect of the central mechanism responsible for the condition, must go hand in hand, and only when the physiological indications are discoverable is the operation to be undertaken.

With reference to the operation it is a matter of great importance not to remove the sympathetic ganglia, because the unnecessary removal of their control of visceral function is wholly unwarrantable. Dr. Royle attaches great importance to the adoption of the lumbar route for the operation of lumbar ramisection, not simply because it is for the patient a less formidable procedure than the abdominal route involves, but especially because it permits a clearer view of the rami and a more certain identification of the right ones to avulse.

In the second lecture I indicated which rami should be cut, and why.

THE OPERATION OF LUMBAR RAMISECTION.

Royle has given the following account of the surgical technique.

The patient should be made to lie on the side opposite to that of operation and should be inclined slightly toward the surgeon, who faces the patient's back. The space between the ribs and the crest of ilium should be made as wide as possible by placing a sandbag beneath the patient,

or, better still, by using the adjustable support devised for operations on the kidney.

Step 1.—The incision is made from the last rib to the crest of the ilium and thence forward to the anterior superior spine of the ilium. If the quadratus lumborum muscle can be palpated, the downwardly directed part of the incision should follow its lateral margin, but if not, the lateral margin of the sacro-spinalis should serve as a guide. The forwardly directed part of the incision should lie about 1 cm. below the actual crest of the ilium. This enables the attachment of the external oblique muscle to be exposed. The flap of skin and fascia outlined by this incision is reflected forward to expose the attachments of the latissimus dorsi to the lumbo-dorsal fascia and of the external oblique muscle to the crest of the ilium.

Step 2.—The trigonum lumbale Petiti is next defined and from this point forward the oblique muscles are freed from the crest of the ilium to within 6 or 8 cm. of the antero-superior spine of the ilium. In doing this it is possible in most subjects to divide the external oblique through definite tendinous tissue close to its insertion and to avoid cutting the actual muscle fibres. This gives a decided advantage in closing the wound. The internal oblique and the transversus abdominis muscles are divided through the muscle fibres close to their attachment. The dissection is then carried upward and the lumbo-dorsal fascia is divided at the lateral border of the quadratus lumborum. In doing this it may be necessary to cut through the fibres of the latissimus dorsi.

Step 3.—The abdominal wall is now free to be thrown forward and after dividing the fascia transversalis the hand can be passed in front of the quadratus lumborum and the psoas muscles until the medial border of the psoas is palpated. Suitable retractors are then placed in position. Care should be taken not to disturb the fascia covering the quadratus lumborum and the fascia covering the psoas muscle.

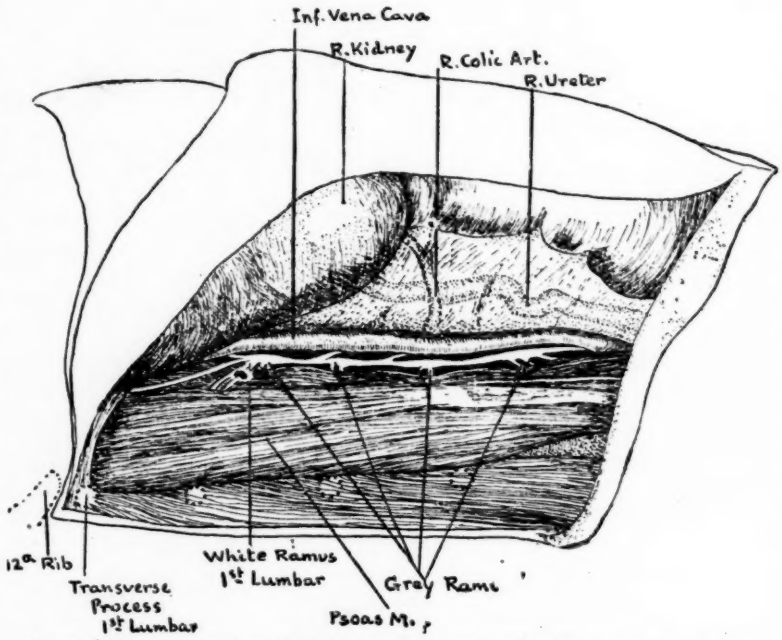

FIG. 10.—Dissection to show right lumbar rami communicantes as seen in the operation of lumbar ramisection. The incision runs from the twelfth rib along the border of the erector spinae muscle and is continued for three inches along the crest of the ilium. The tips of the transverse processes are seen in relation to the quadratus lumborum muscle, and the genito-femoral nerve is seen on the anterior aspect of the psoas.

In a very fat subject, however, the approach to the sympathetic trunk may be rendered more easy by leaving the fascia transversalis intact except at the medial border of the psoas muscle, where it must be pierced to reach the sympathetic trunk. The ganglionated sympathetic trunk can often definitely be palpated where it lies at the medial border of the psoas muscle before it can be seen. The psoas itself sometimes constitutes a difficulty in the adult subject by obscuring the trunk from view, and a suitable retractor is necessary to flatten the muscle. In children and poorly developed subjects this difficulty is not great.

The ganglionated sympathetic trunk will be found lying on the bodies of the lumbar vertebrae near the medial border of the psoas muscle. The abdominal sympathetic trunk on the left side is easy to define, if the medial border of the psoas is sought. In this situation a thin layer of connective tissue passes from the psoas muscles across the sympathetic trunk and great vessels to the region of the psoas on the opposite side. This is easily slit with a blunt dissector and the sympathetic trunk comes into view. On the right side the trunk lies under the lateral margin of the inferior vena cava and is usually placed anteriorly to the lumbar vessels. This, however, is by no means constant, for on several occasions Royle has experienced difficulty from the lumbar veins crossing anteriorly to the sympathetic trunk. When this occurs the operation may be simplified by removing one or more of these veins. On the left side this complication has not been met, but in young subjects the lumbar arteries can be mistaken for rami communicantes, which they sometimes resemble in size and direction. In a few instances the lumbar lymphatic vessels and an unusually low formation of the receptaculum chyli has made the definition of the sympathetic trunk more difficult. In one instance the lymphatic vessels lay between the sympathetic trunk and the attachments of the psoas muscle. On lifting the lymphatic vessels the rami appeared from under their posterior surfaces, and patient dissection was required to define each structure.

In defining the sympathetic trunk long blunt dissectors are necessary. Royle's dissectors are 25 cm. long and have rounded ends. A long probe with a flat handle and curved on its end like a strabismus hook is useful for lifting the sympathetic trunk when defining its branches. Long straight, or slightly curved, artery forceps, 20 cm. long, are also essential, and four should be provided. The structures of the abdominal wall and abdominal viscera demand a large, broad, and deep retractor. Royle's retractor for use in operations on the average adult is 8.75 cm. wide and 12.5 cm. deep. It is constructed to act as a light-reflecting surface and has a shelf extending forward from its lower edge so as to depress structures medial to the ganglionated cord. The sympathetic trunk and the rami communicantes should be clearly defined before section. The method of dividing the rami communicantes is usually by avulsion. Each ramus may be seized by a pair of artery forceps and drawn away from its lateral connexions, though in many instances it is necessary to divide a big ramus with a long pair of blunt-pointed scissors. In young subjects the rami may be easily and effectively broken with the blunt dissector. When ramisection of the second, third, and fourth lumbar nerves has been effected, the ganglionated cord is then divided at a level corresponding in position to the fourth lumbar nerve. The operation is then completed. The edges of the lumbo-dorsal fascia are first sutured in the region of the trigonum lumbale. The oblique muscles are then sutured to the crest of the ilium and a special point is made of suturing the tendinous portion of the external oblique to its original attachment and to the adjacent fascia lata. When this is done carefully the raw area on the crest of the ilium comes in contact with a raw area of considerable width on the under surface of the external oblique tendon, and this facilitates adhesion. The lumbo-dorsal fascia and the latissimus dorsi muscles are then sutured. The skin is closed without drainage.

The whole operation should be performed with very little loss of blood except from small vessels occasionally encountered in freeing the oblique muscles. There is no bleeding in the depth of the wound if the approach is

confined to the plane between the peritoneum and the fascia covering the quadratus lumborum and the psoas muscles. Sharp instruments should not be introduced into this wound. The essential dissection can be done with blunt dissectors and long artery forceps.

The ilio-hypogastric and ilio-inguinal nerves are both drawn forward with the abdominal wall and the ureter with the parietal peritoneum. The incision has been designed so far as possible to divide only fibrous structures in approaching the sympathetic trunk. The internal oblique and the transversus abdominis muscles have, usually, to be divided through their muscle fibres at their insertion to the crest of the ilium. The incision also avoids all important nerves and blood vessels, and, if carefully sutured, should leave the abdominal wall as strong as before the operation.

THE OPERATION OF CERVICAL RAMISECTION.

The rami communicantes only are divided in the cervical operation. The sympathetic trunk does not come into the field of operation excepting in the approach to the first thoracic nerve. The rami above the first thoracic nerve are post-ganglionic fibres, but the first thoracic nerve itself usually has both a white and a grey ramus. The sympathetic rami usually enter the nerve roots of the brachial plexus after they emerge from the intervertebral foramina, though occasionally rami join the nerve roots within the foramina.

Step 1.—The patient lies with the chin turned away from the side of operation and with a small pillow placed beneath the shoulders. The field of operation is reached through an incision extending from the clavicular insertion of the sterno-mastoid backward and slightly upward across the posterior triangle. In young subjects and in those patients in whom the nerve roots all emerge from behind the scalenus anterior this incision suffices, but occasionally it is necessary to make a second small incision upward along the posterior border of the sterno-mastoid to be sure of reaching the connexions to the fifth and sixth nerves.

Step 2.—The platysma is divided and the external jugular vein is secured in the line of the original incision. The anterior layer of the cervical fascia is divided and blunt dissection is then carried out to expose the deeper layer of fascia covering the brachial plexus and the scalenus muscles. Between these two layers of fascia the superficial cervical

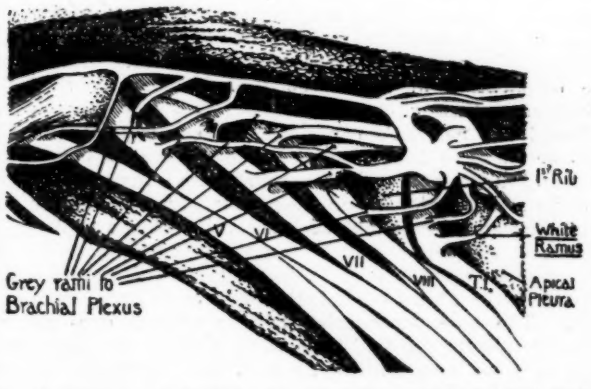

FIG. 11.—Diagram to illustrate the arrangement of the cervical rami communicantes on the right side. After Dr. T. K. Potts.

artery will be found occasionally. The transversus colli artery appears in a deeper plane crossing the nerve roots, and in Royle's experience most frequently between the seventh and eighth nerve roots. To obtain a clearer view of the plexus this artery should be tied and divided. The omo-hyoid muscle, appearing in this space, can be retracted downward.

Step 3.—In the upper part of the plexus it is necessary to look for and define the phrenic nerve as it lies on the anterior aspect of the scalenus muscle. The nerve roots are then exposed and traced to the intervertebral foramina. The subclavian artery is identified and pulled forward to expose the eighth cervical and the first thoracic nerve. The rami communicantes are not easy to define. Those to the fifth and sixth nerves may come across the anterior surface of the scalenus anterior to join the nerve trunks or they may come through the muscle itself (Fig. 12). In addition there may be two or more branches; and it is necessary in dealing with each of the nerve roots to be sure that all anterior connexions are divided right up to the intervertebral foramina. Grey rami may join

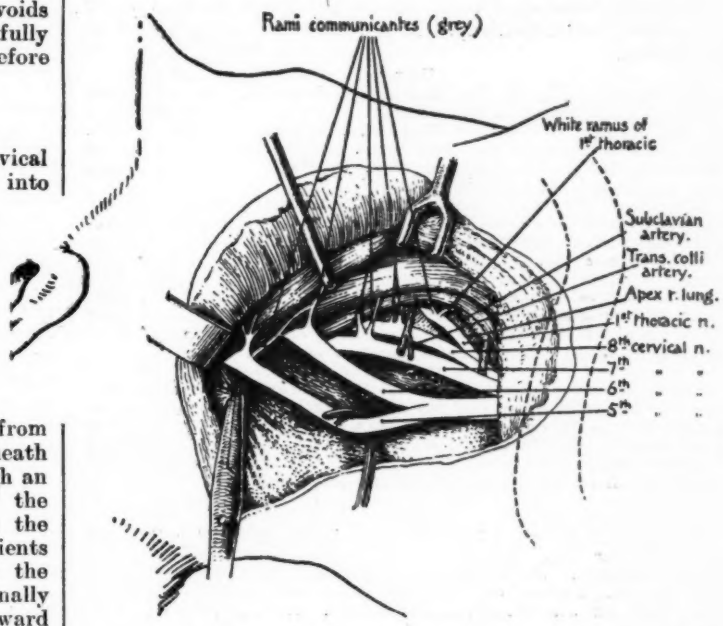

FIG. 12.—Royle's figure of the rami communicantes, as exposed in his operation of cervical ramisection, modified by Dr. John Beattie and Miss Audrey Russell. Note the three slips of the anterior scalene muscle between which the grey rami to the upper three nerves emerge. Position of clavicle indicated by broken lines.

the nerve roots on their antero-inferior aspects, and in many instances must be sought there. This particularly applies to the eighth nerve. Medullated muscular branches will also be found on the anterior aspect of the nerve roots. These may be confused with sympathetic rami, and if there is any doubt should be removed. When the phrenic nerve receives communications from the fifth cervical nerve it will be found necessary to retract it laterally to get a clearer view of the trunk of the fifth nerve. The greatest difficulty will be found in connexion with the eighth cervical and the first thoracic nerves. In approaching this part of the dissection the first rib should be palpated and the first thoracic nerve sought as it crosses the neck of the rib. This nerve trunk can then be traced into the thorax. The cervical sympathetic trunk will be found on a plane posterior to the subclavian artery, and if it can be well defined no difficulty will be experienced in picking up the communicating rami to the eighth nerve. At this point the trunk usually moves to a more medial position as it travels into the neck, but sometimes it will be found lying upon the root of the eighth nerve. The grey ramus of the first thoracic nerve is found on its superior surface medial to the white ramus, which should be avoided if possible. The rami in this operation may usually be easily broken with a small strabismus hook. After ramisection has been completed the wound is closed by drawing together the edges of the platysma and by suturing the skin without drainage.

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[18] *Principles of General Physiology*, third edition, p. 545. [19] *Rev. Neurolog.*, July, 1924, p. 4. [20] *Med. Journ. of Australia*, September 27th, 1924, p. 315. [21] Compare Walshe, *Lancet*, September, 1923, p. 644; Riddoch, *Proc. Roy. Soc. Med.*, July, 1922, Neurology, p. 47.

(To be concluded.)

BRAIN ABSCESS OF AURAL ORIGIN.

BY

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ALTHOUGH brain abscess is by no means a rare complication of suppurative otitis media it is sufficiently uncommon to make the report of such cases a matter of interest. The following are brief summaries of six cases that have been under my care during the past year. Three have recovered completely, one died of a recurrence three months after operation, and two died without the abscess being found at operation.

CASE I.

A man, aged 37. He had had left otitis media for many years with offensive discharge and granulation tissue. He was admitted to the Ministry of Pensions Hospital, Liverpool, on October 28th, 1923, in a drowsy, semiconscious state. When first seen by me on November 2nd he was comatose; temperature 97°, pulse 40; tongue dry and furred; no eye symptoms.

Operation.—The skull was opened through the squamous temporal and half an ounce of fetid pus evacuated from the temporo-sphenoidal lobe. During the operation respiration ceased for about half a minute and was not resumed until the abscess had been opened. Uninterrupted recovery followed, and on December 27th he was able to go home for a few days. On January 25th, 1924, a radical mastoid operation was performed. On February 25th he complained of headache and vomited, and a few hours later became comatose with right-sided convulsions and died.

Post-mortem examination revealed a large recurrence in the temporo-sphenoidal lobe. The fatal termination was a great surprise to all, since up to the day of his death the temperature and pulse were normal and the man was going about apparently in good health. On retrospect, symptoms that might have aroused suspicion were slight headache, taciturnity, slowness in answering questions, and a certain moodiness and unsociability.

CASE II.

A boy, aged 12, was admitted to the Liverpool Stanley Hospital on November 7th, 1923, in a very drowsy condition and with sensory aphasia. The tongue was dry and furred. There were no eye changes. Chronic otitis media with slight offensive discharge was found on the left side. The mother was not aware of any ear trouble.

Operation.—The skull was opened as in Case i, without disturbing the mastoid, and a large abscess was evacuated in the temporo-sphenoidal lobe. Recovery was delayed by a large cystic hernia cerebri which had to be partly removed. On February 20th, 1924, a radical mastoid operation was performed. On March 9th he was discharged in good health and with no impairment of mental function.

CASE III.

A girl, aged 17. On April 5th, 1924, I saw this patient in consultation with Dr. C. L. Forde. There had been a recent attack of influenza with acute otitis media on the left side. Whilst apparently convalescent severe frontal and temporal headaches had set in, with vomiting on one occasion. On examination I found the mind clear and alert and the temperature and pulse normal. The left drum was red and the landmarks obscured, but there was no discharge and no mastoid tenderness. No eye symptoms were present and no localizing signs. The possibility of brain abscess was considered, but the indications were not thought sufficient to justify operation. On April 10th she became rapidly comatose and on the following day was admitted to the Birkenhead Borough Hospital *in extremis*.

Operation.—As only the most expeditious measure was practicable the temporo-sphenoidal lobe was rapidly explored through a vertical incision above the ear. No pus was found, but, the tension being much increased, a decompression operation was performed. Lumbar puncture revealed many lymphocytes, but no micro-organisms. Temporary improvement followed, but symptoms of meningitis ensued and death occurred on April 29th.

Post-mortem examination revealed a large abscess of the left lobe of the cerebellum.

CASE IV.

A girl, aged 13, was admitted to the Victoria Central Hospital, Wallasey, on May 9th, 1924, with temperature 99.2°, pulse 156, and with foul discharge and granulation tissue in the left ear. On May 11th the condition was worse, with temperature 103.6° and pulse 128. Vomiting was occurring and the child had sunk into a drowsy condition.

Operation.—A radical mastoid operation was performed, the dura of both middle and posterior fossae being exposed but not opened. Slight improvement followed, but on May 16th the child became very ill, and on May 17th was deeply comatose with Cheyne-Stokes breathing and complete incontinence. At a second operation the cerebellum was first explored, slight nystagmus having been observed. No pus was found, but on subsequently puncturing the temporo-sphenoidal lobe a large abscess was evacuated. Uninterrupted recovery followed and the child is now in excellent health.

CASE V.

A man, aged 25, had had left suppurative otitis media since Christmas, 1923. He was admitted to the Victoria Central Hospital, Wallasey, on July 6th, 1924, with a history of severe headaches and vomiting during the previous three weeks. He appeared to be very ill and lay in a heavy apathetic state. The tongue was dry and furred; temperature and pulse normal; there were no eye changes. Slight rigidity of the posterior cervical muscles was present.

Operation.—Cholesteatomatous material was found in the mastoid. The temporo-sphenoidal lobe was explored without result. Subsequently a small abscess was evacuated from the cerebellum through an opening internal to the lateral sinus. The patient made an uninterrupted recovery.

CASE VI.

A man, aged 48, seen in consultation with Dr. Leggate on October 9th, 1924. During the previous week there had been dizziness, headache, and vomiting, inability to write, and very impaired memory, followed by increasing mental dullness. The tongue was very dry and furred, the temperature and pulse normal. He had had right suppurative otitis media for twenty years. There was slight nystagmus and strabismus with a degree of deficient power in conjugate movement of the eyes towards the affected side.

Operation.—The cerebellum was explored by numerous and deep punctures, both mesial and posterior to the lateral sinus, but without result. Exploration of the cerebrum was also negative. Cerebro-spinal fluid escaped under pressure, but was free from cells and organisms. Following the operation he continued in a dull apathetic state, but when spoken to answered questions fairly briskly, although for the most part very incorrectly. He died suddenly on October 22nd.

Post-mortem examination disclosed an abscess in the anterior angle of the right lobe of the cerebellum adjacent to the pons.

The foregoing cases illustrate the fact that localizing signs are frequently absent in brain abscess, and that, for this reason, it is often difficult to know whether the cerebrum or cerebellum is affected. In left temporo-sphenoidal abscess word deafness is usually present, but, if the disease be well advanced, the general hebetude will make it impossible to test for sensory aphasia. Crossed hemiparesis and homolateral oculo-motor paresis are, in my opinion, rarely present in temporo-sphenoidal abscess.

In cerebellar abscess nystagmus and some form of ocular paresis are the most frequent localizing signs, but even these are often absent (Cases iii and v), as also are asynergia and homolateral paresis. In my experience the most significant symptom of acute brain abscess is severe pain in the head, which is subject to the most terrible exacerbations. This is an early symptom and is invariably present. It continues until a dull apathetic state ensues, which is the precursor of coma.

Regarding operative treatment, it is agreed that the best procedure is to open the mastoid and endeavour to find the track of the disease. On exposing the dura the presence of a brain abscess is usually either immediately obvious by the escape of pus through a hole in the dura or suspected on account of inflammatory changes in the dura. Occasionally, however, the dura may present a normal appearance, and in such cases the investigation must be carried further by incising the dura and exploring the brain. In Cases iv and v localization of the abscess in the cerebrum and cerebellum respectively was only determined after negative exploration of the cerebellum in Case iv and the cerebrum in Case v.

Should the patient's condition be very critical and the signs be those of temporo-sphenoidal abscess, it is a much safer and quicker procedure not to disturb the mastoid but to make a vertical incision above the ear and explore the brain through the squamous temporal. This was done in Cases i, ii, and iii.

A point in treatment that seems to me of great importance is the making of a large opening in the dura and skull. The mere evacuation of the abscess does not of necessity adequately deal with the situation, for there is a large area of encephalitis around, which, unless decompressed, will maintain increase of intracranial pressure and thereby favour extension of brain infection. A sufficient removal of bone must be made to allow the swollen brain tissue to relieve itself by forming a temporary hernia cerebri. In the case of temporo-sphenoidal abscess, I do not consider it sufficient to remove merely the roof of the tympanum and antrum. Part of the squamous temporal should be removed as well. For similar reasons cerebellar abscesses, unless very small, should be drained behind or through the lateral sinus as well as internal to it. It is important to remember that a cerebellar abscess is much easier to miss than a cerebral abscess, and may, as in Case vi, elude the most thorough search.

FOLLICULITIS CAPITIS FULMINANS.

BY

S. WATSON SMITH, M.B., CH.B.ED.,

BOURNEMOUTH.

THIS case appeared to me to be so unusual as to be worth recording. In twenty years I had not seen such another, nor have I found any reference to the condition in the literature I possess.

In October, 1923, I was called to see a gentleman of 70 who, while gardening, three days previously, had been bitten by an insect on the back of the neck, just within the hair margin. At first itchy, the bite and its immediate surroundings became within a few hours hot, painful, and swollen. When I saw him there was a patch on the nucha the size of a florin, tense, red, and with its surface studded over with papules and with pustules, each having a hair in its centre. The appearance at first glance rather suggested a commencing carbuncle without the induration. Each pustule I probed with pure carbolic acid, and I ordered repeated hot boracic fomentations. Each morning following for the next few days tinct. iodi mit. (*B.P.*) was painted over and beyond the patch in an attempt to limit spread. This was hopeless, so that within two weeks the disease had extended out of all control and had spread so as to involve practically the whole scalp, except an area the size of the palm of the hand above the left ear, and about the left "temple"; the spread, however, being at once limited by the edge of the hairy scalp. The small initial patch was made up of an agglomeration of papules which speedily became pustular and of lesions which were pustular from the start; a hair pierced each pustule. The pustules were round, small, and at first tense, of a yellow colour, and did not easily rupture.

When the rapid spread commenced fresh pustules appeared in clusters without any previous papular stage and without any basal infiltration to speak of; the scalp was invaded from behind forwards. The pustules remained discrete, though closely set and crowded, and infection appeared to spread by auto-inoculation and direct extension, so that by and by the whole surface oozed pus, which could also be pushed along, from place to place, under the scalp, welling up at the same time through the follicles and showing that undermining was taking place. The hairs at first remained firmly seated and were painful to epilate.

In the third week the infection was fierce and the disease violent in its aspect. From the first the subjective symptoms were: a local burning and pain which extended with the disease, restlessness, furred tongue, loss of appetite, and these, with the situation of the trouble, made sleep almost impossible. The pain, however, became much less severe as the disease approached its worst. During the first week the temperature steadily rose, reaching its highest (102.4°) on the sixth day, the pulse rate being round about 100. There was what might be called a "negative phase" during the second week, and at the fourteenth or fifteenth day general toxic signs became more evident. The skin was yellowish, although no sign of jaundice was indicated in the conjunctiva or sclerotic; the patient perspired freely, complained of headache, aching in the limbs, and exhaustion. With these symptoms, the distress of mind, and want of sleep in such a highly nervous, active-brained man as the patient was, coupled with a soft mitral and aortic first sound, I felt that he was becoming worse, and he was, in fact, extremely ill. Brandy was given, digitalis, and full doses of nuclein, and he was not allowed to sit up in bed. Eusol soaks were substituted for the boracic fomentations, the scalp being gently swabbed with each change of dressing. The patient, being an anti-vivisectionist, had refused to allow any vaccine or method of treatment which had been learned by experiment upon animals; I, of course, respected his feelings, explaining at the same time the greater risk he must take. An intramuscular dose of 0.5 c.cm. colloidal manganese on the fifth day he refused to allow me to repeat, and no autovaccine could be used.

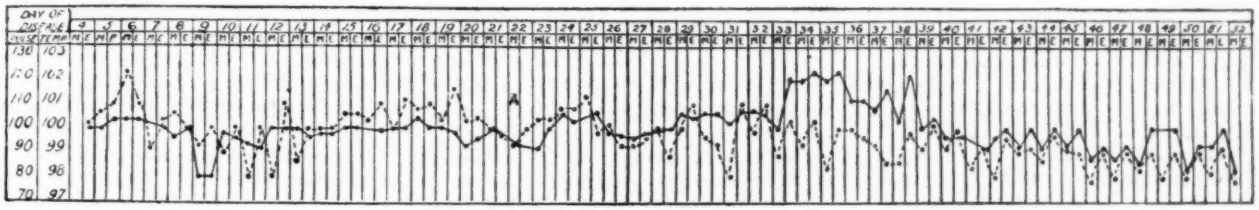
On the twentieth day there was a fall of blood pressure, he was a little cyanosed, and was breathless on the least exertion. The urine contained pus, strings of mucus, and a trace of albumin, but no sugar, and no casts could be found. These were due to a cystitis consequent upon an enlarged prostate, and now aggravated, likely, by the scanty urine, dorsal decubitus, and lowered resistance. However, greater comfort was attained by turning him prone on his face from time to time, especially for a little before each act of micturition, and by the occasional gr. x hexamine, imperial drink, barley water, etc. These kept the cystitis in temporary control.

On the twenty-second day, under gas and oxygen, the whole scalp was cleaned up and any burrowing pus was tapped; a change over to flavine was made. A gauze pack saturated with 1 in 1,000 acriflavine in normal saline solution was applied, covered with oiled silk. This dressing was replaced every four hours, being each time carefully packed under any portion of undermined skin. For the next three days the patient was profoundly ill, a subsequent fall in temperature and pulse rate appearing to be rather an ominous sign than otherwise. A smear of pus, stained and examined microscopically, showed masses of pyogenic cocci.

By the twenty-ninth day he had begun to sleep better, to ask for more solid food, and the appearance of the scalp was different altogether. The acriflavine had fixed the infection, which, in a day or two more, was in perfect control, the discharge having almost ceased. The soaks were, however, steadily continued, but with a longer interval between dressings.

Six weeks after the operation the whole scalp was practically healed, but, on account of the destruction of many hair bulbs and follicles, there were patches of baldness, and others, islands, where the hair still existed, the damage to these not having been so complete. In the right frontal region there was a network of fine vessels—a telangiectatic patch.

This case, then, was a coccic pustulosis from the start, there being a slight perifolliculitis as well as the folliculitis of great intensity with little surrounding inflammation and practically no induration; at no time was there any crusting. The rapid spread went by continuous auto-inoculation as well as by burrowing, and there was no appreciable lymphatic gland involvement. The effect of the acriflavine was surprising in the way the infection was fixed and controlled. There had been no seborrhoea of the scalp to begin with, nor was there any skin lesion elsewhere—on body or limbs. The partial vacuum method of treatment might have aborted the mischief at the start or an autovaccine have cured more quickly, had the patient allowed their use.



A=Anaesthetic—gas and oxygen.

Kaposi described a disease which he named "dermatitis papillaris capillitii," an inflammation of the scalp commencing at the back of the neck and spreading upwards towards the crown. It was papular at first, each papule being pierced by a hair; there was much surrounding induration, an occasional pustule, the disease, however, being more strictly limited than in my case and being much more slowly progressive. This case differs in many ways from Kaposi's disease, more particularly in the intense nature of the infection and in its rapid and extensive spread, as also in the absence of much surrounding inflammation and induration. "Folliculitis capitis fulminans" appeared to me to be the most suitable label for such an acute pyogenic folliculitis.

I am indebted to Dr. Maynard Varey for having seen the case for me on several occasions and for having confirmed this record.

VOLVULUS OF THE SMALL INTESTINE.

BY

J. W. GEARY GRANT, F.R.C.S.,

SENIOR ASSISTANT SURGEON, CARDIFF ROYAL INFIRMARY.

THE cause of the condition found in the case here recorded was undoubtedly adhesions of the lower ileum forming a mass, which the enlarging uterus caused to rotate.

A married woman, aged 24, a patient of Dr. Henry Paterson of Cardiff, was transferred from the Maternity Hospital to the Royal Infirmary on November 24th, 1924, with the following history.

The patient, who was seven months pregnant, was seized at 4 p.m. on the previous day with severe epigastric pain, which in a few hours became generalized over the whole abdomen and "doubled her up." This was accompanied by severe and persistent attacks of vomiting. On November 10th she had had a similar attack of pain and vomiting, which lasted five hours. When 1 year and 7 months old she had been operated on in Liverpool for "perforation of the bowel." In 1916 she was operated on by Mr. H. G. Cook at this hospital for peritonitis, the cause of which was not determined, but the appendix was removed.

When admitted she was pale and had an anxious expression. The pregnant uterus reached midway between the ensiform cartilage and the umbilicus. The abdomen was tender all over and was moderately rigid. My diagnosis was perforated gastric ulcer.

Operation.

At 4 p.m. on November 24th, twenty-four hours after the onset, the abdomen was opened by a long right paramedian incision. The pregnant uterus presented, and to its right side was a mass in the angle between the ascending and transverse colon, consisting of matted coils of ileum of a dark mulberry colour, beginning to lose their gloss and with a faecal smell. The mass was brought out, and it was found that there was a twist from right to left through 360 degrees, situated exactly at the ileo-caecal valve, where the gut was anaemic. The proximal small intestine was moderately distended. A healthy portion was found; a clamp was applied there and also at the junction with the caecum; the ends were closed by a double basting suture over Parker-Kerr clamps. A lateral anastomosis was effected between the proximal intestine and the ascending colon, iso-peristaltic, by an inner Connell and outer Cushing suture. The mesenteric vessels were ligatured and the gap in the mesentery closed. The small intestine removed measured 5½ feet, and about 5 feet of this was gangrenous. The abdominal wound was closed without drainage; it opened a week later at the lower end and discharged pus freely for a time.

On November 26th she miscarried and was delivered of an anencephalic foetus. She then improved rapidly, the bowels being opened on November 27th; very persistent diarrhoea set in, which was difficult to control for several weeks, but at last ceased. She was discharged to a convalescent home early in January.

Kinking and twisting of isolated loops of small gut is not very uncommon as a cause of intestinal obstruction following the adhesions of peritonitis, whether due to appendicitis or other causes. Two cases are cited by Perrin and Lindsay, in the *British Journal of Surgery*, in their series of 400 cases of intussusception at the London Hospital, one being volvulus of the ileum, the other of ileum and caecum, following reduction; but such an extensive volvulus as this is, I think, unusual.

A lateral anastomosis, rather than an end-in-side, although taking longer to carry out, was thought to be the safer, as much less likely to leak; and the result appears to have justified this, as, in spite of infection of the abdominal wound from the gangrenous gut and the occurrence of very intractable diarrhoea, the patient made an uninterrupted recovery.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

MULTIPLE POLYPOSIS OF THE COLON.

AT a meeting of the Royal Academy of Medicine in Ireland, reported in the BRITISH MEDICAL JOURNAL of January 3rd (p. 21), a paper was read by Sir W. de Courcy Wheeler on the condition known as polyposis of the colon, and interesting remarks were made as to its etiology and pathology. It was suggested that the polypi were the result of a chronic ulcerative colitis. The following cases in my experience throw an interesting light upon the etiology and show that in certain of these rare cases the cause is a congenital one.

When I was acting as house-surgeon in a London hospital a man was admitted, aged 30, who had for some years complained of the passage of bloody stools, and had lately been suffering from increasing constipation and rapid wasting. He was found to have a large fixed mass in the descending colon. It was decided to carry out complete removal, but he died on the second day after the operation. Upon opening the colon, the mucous surface was found thickly covered with small pedunculated polypi, and the malignant growth had evidently commenced in one of these.

About six months after I admitted his brother, aged about 32 years, with a similar history, and found a similar malignant growth in his left iliac fossa. In this case it was decided to perform colostomy; on opening the colon he was found to have a large number of pedunculated polypi of the same character as those found in the colon of his brother.

A third brother, aged 27, came to visit him while in hospital, and informed me that he frequently passed blood with his stools, but I had no opportunity of discovering whether the condition of his bowel resembled that of his brothers. He also told me that his mother died of cancer at an early age, and that his sister had died of carcinoma of the uterus at the age of 24.

Is it not probable that in these cases there was a family tendency to the formation of polypi upon the mucous surfaces and the malignant changes which are so usual in this condition of polyposis had taken place?

Saundersfoot. D. H. PENNANT.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

OXFORD DIVISION.

THE first meeting of the year of the Oxford Division was held at the Radcliffe Infirmary on January 28th, when Dr. NEILL presided over a gathering of about fifty members.

Miss BIGGAR, matron of the Radcliffe Infirmary, read a paper on the various diets used in the hospital, with special reference to that employed in the treatment of diabetes. The items were carefully considered from the point of view of the expense to the patient, and it was shown that the diet of a patient on an average amount of insulin cost rather less than that of a patient treated without insulin. Various forms of enemata and their uses were described and details given of the method of colon irrigation for diagnostic and therapeutic purposes.

Mr. HAYWARD PINCH gave a lecture on radium therapy, illustrated with lantern slides. The remarkable results of a single application of radium in conditions like rodent ulcer were well seen in the photographs. Other conditions treated with success included psoriasis, lupus, keloid, and naevi, and relief of symptoms and prolongation of life might be expected in epitheliomata, inoperable cases of lympho-sarcomata, and Paget's disease of the nipple. In the time at his disposal Mr. Hayward Pinch was only able to deal with more or less superficial lesions.

Mr. GIRDLESTONE asked for a diagnosis in the case of a woman of middle age who came to the orthopaedic department with a patient and who was noticed to have altered nutrition of the finger-nails and wasting of some of the smaller muscles of the hands, and who complained of sensory changes in the fingers. Acroparaesthesia and syringomyelia were suggested.

Dr. STOBIE showed a child, aged 19 months, who had been operated on twelve months previously by Mr. John Fraser of Edinburgh for hydrocephalus. At birth, which was uncomplicated, the child's head was of normal size, but when the baby was 4 months old the mother noticed that the eyes were peculiar and that the head was swelling. The latter increased rapidly in size until about six weeks before the child's admission to hospital, when it seemed to become fairly stationary. At that time the child was aged 9 months and looked well and bright. The head was uniformly enlarged, the sclera of both eyes showed prominently above the iris, the anterior fontanelle was bulging, and the pressure of the cerebro-spinal fluid was increased. The measurements of the head were: circumference 21 inches, vertical 13¾ inches. The result of investigations made in hospital showed the hydrocephalus to be extraventricular in type, due to pre-natal adhesions between the edge of the tentorium and the peduncles of the brain. The common carotid arteries were ligatured at an interval of two weeks, and the baby was discharged with the fontanelle pressure greatly reduced. The present state of the child was eminently satisfactory. The fontanelle remained depressed, the head could be held up well, attempts to walk with assistance were being made, and intelligence and talking appeared normal.

Dr. SUMMERHAYES asked for opinions as to diagnosis and treatment in the case of a woman, aged 50, with a swelling in the left popliteal space of fourteen days' duration, associated with pain. The diagnosis suggested by the surgeons present was an affection of the "semi-membranosus bursa," and the treatment non-operative.

Mr. H. WHITELOCKE showed two cases: (1) A woman, aged 44, with a soft pedunculated tumour over the right eyebrow (noticed for the past thirty years) and a large mass of soft, non-adherent glands in the right preauricular and upper cervical region (present for eight years). It was agreed that a diagnosis could not be made until the tumour had been excised and examined microscopically. (2) A man, aged 59, epileptic, with recurrent dislocation of the right shoulder, to show the result of Clairmont's operation.

Dr. GIBSON showed a case of recurrence of symptoms of encephalitis lethargica of the Parkinsonian type in a boy of 15. The facies, attitude, and gait were typical; rigidity

was marked; tremors were absent. The boy was mentally normal; the only eye sign was a loss of the accommodation reflex. There was a tendency to sleep in the day and be awake at night. The sphincters were normal, and the only other nervous sign was an upgoing toe on the left side. He was being treated by hexamine and intravenous vaccine therapy, but the temperature still showed a tendency to rise for a few days from time to time.

KENSINGTON DIVISION.

LEGAL DISABILITIES IN THE EARLY TREATMENT OF MENTAL DISORDERS.

AT a meeting of the Kensington Division of the British Medical Association on February 13th, with Dr. WALTER E. FRY in the chair, an address was given by Dr. R. H. COLE, physician in charge of mental diseases at St. Mary's Hospital, Paddington, on "The present legal disabilities in the early treatment of mental disorders."

Dr. R. H. Cole's Address.

Dr. Cole, after expressing his pleasure in the occasion, and mentioning that he had been a member of the British Medical Association for more than thirty years, said that legal restrictions were imposed in the treatment of various diseases, such as those of an infectious character, but in no department of medicine were these so paramount as in the case of mental disorders, when the liberty of the subject was involved. It was a question whether the legal encroachment in the domain of medicine had not gone so far as to constitute a serious menace to the State in the matter of the prevention and cure of insanity, which was admittedly the province of the medical profession. From the Egyptian civilization onwards the medical man had been regarded as the authority on the treatment of diseases, although mental afflictions in the Middle Ages were to some extent handed over to ecclesiastical folk and laymen. The appointment by statute of the Royal College of Physicians as the central body governing mad-houses in 1774 marked an epoch in medical supremacy, which subsequently led to a Government department being set up in the shape of the body now known as the Board of Control. He thought this body would be better recognized under a more suitable name, such as the "Board of Mental Health." "Board of Control" was used in connexion with liquor, railways, and other things; it was not sufficiently distinctive—people did not know exactly what it meant. This central authority was now very properly affiliated to the Department of Public Health, under the Minister of Health, in place of the Home Secretary, who presided over the Prison Service. The transfer was a notable advance and a sign of progress. They wanted to eliminate the idea of detention as much as possible. At present there was too much similarity between asylums and prisons, and the former were now being called mental hospitals. In the reign of George III, who himself suffered from mental illness, mental derangement in poor persons was the province of local justices of the peace, who frequently confined them to prisons, for lack of other accommodation. Permission to build asylums out of the rates only originated in 1808, and was not made compulsory until 1845. Medical certification was scarcely a hundred years old, and at first was merely instituted as a written protection to the receiver of an insane patient of the paying class, and was extended to the poorer class later. Matters indeed became regularized in 1884-5, when Lord Shaftesbury initiated his great work on behalf of the mentally afflicted. It seemed extraordinary that in recent times there had been no great public man who in any way approached the earnestness with which he undertook this work. As the result of repeated actions at law, the justices' order, which hitherto had been confined to the pauper class, was added to the private class in 1890, when the existing Lunacy Act came into operation, and the county councils took over the management of asylums from the justices.

The close of the great war had directed popular attention more and more to the need of lunacy reform, which the medical profession had urged for so many years. The Royal Commission now sitting afforded a special opportunity for the profession's voice to be heard on this important matter. The Medico-Psychological Association had devoted much attention thereto, and would shortly be presenting its evidence. As chairman of the committee concerned, he had spent a good deal of time over that evidence. A conference had taken place between representatives of that body and the British Medical Association; they had tried to agree on general principles, and in the main had done so. Every member of the British Medical Association must be grateful to its Council for the work it had undertaken through its special committee in the preparation of the important Memorandum of Evidence which was delivered by Dr. Langdon-Down and other witnesses before the Commission on January 14th (SUPPLEMENT, January 17th), and to which he wished to direct attention. The disabilities under which the profession laboured in the early treatment of mental disorders were obvious to all who had any experience. Directly a change from home was indicated in a patient who was certifiable, and was yet willing to accept treatment elsewhere, the requirement of certification existed to comply with the law. The stigma and consequences of certification were quite uncalled for in most temporary cases, or in the early stages of other cases of mental disorder, including those patients who were too ill to possess any volition at all. The law was in urgent need of amendment, so that clinics, with in-patient beds, might be established by the local authorities, and arrangements should be made by them for the provision of wards or annexes in the general hospitals. The rate-supported mental hospitals also should be available for the admission of patients on a voluntary basis, which would do much to remove the dissatisfaction attaching to detention in those institutions. The reputation of a place was altered very much by the presence of voluntary patients; it helped the certified patients if they knew that some of the others were not compelled to remain. Mental disorders should be regarded as a matter of health, and the Poor Law should have nothing whatever to do with them. The Mental Treatment Bill of 1923 would do much in the desired directions, even if the delay in the abolition of the Poor Law continued. As regards the paying class, it should be made legal for a certifiable patient, if harmless to himself or others, and not unwilling, to be treated temporarily in a nursing home or elsewhere that was recommended for him or her. By this means certification might be delayed or be entirely dispensed with, to the satisfaction of all concerned. At present the medical profession was unable to advise what was best for a patient by reason of the hampering state of the law, and many patients received no treatment at all and lapsed into chronic insanity which might have been prevented. A patient might be certifiable one day and not the next, or perhaps certifiable for a week and then recover; and to have two separate authorities seemed to him (the lecturer) entirely wrong. Dr. Cole went on to say that the medical members of the Board of Control were not sufficiently well paid. The salaries were fixed by Act of Parliament at £1,500 a year when the Board was initiated in 1845 and remained the same to-day. He had no axe to grind, but thought the remuneration should be about £2,500 a year. An unsatisfactory thing about the Board of Control was that the legal element was too much in evidence. It should be a medical body, with legal advisers. The address proceeded with an elaboration of some of the details specified in the British Medical Association's Memorandum, Dr. Cole remarking that it deserved the careful attention of the medical practitioner. It was so important that he wished it had been incorporated in the body of the JOURNAL; he was afraid too many busy practitioners did not give the SUPPLEMENT the attention it should receive.

Discussion.

The CHAIRMAN thanked Dr. Cole for his address and invited discussion. He said that the question of the salary of the members of the Board of Control, the suggestion in regard to voluntary boarders, and other points raised by Dr. Cole, were of very great importance.

Dr. CHRISTINE MURRELL suggested that voluntary boarders who were certifiable should be under the control of the Board of Control or some other body, otherwise they would not be adequately protected. The conditions in some of the asylums which the Board of Control would pass were

unsatisfactory—for example, patients quite well aware of their position were placed in the same ward with people who were moaning and yelling and unpleasant in their habits. There was no woman doctor on the Board of Control because the authorities refused to pay women the same as men.

Mr. E. B. TURNER, referring to the objection of practitioners to certify patients, said he had not certified one for thirty years. He was much impressed by the evidence the British Medical Association had put before the Royal Commission. It was exceedingly well balanced and well considered, and he agreed with all the conclusions.

Dr. MARY BARKAS considered that one of the two certifying doctors should be the patient's medical man. In view of public feeling, it might be well that an expert, as well as the judicial authority concerned, should be a party to the detention certificate. She saw no means of compelling local authorities to make adequate provision for early treatment unless the Board of Control had compulsory powers.

Dr. COLE, replying to the discussion, said the Board of Control had absolute powers over licensed houses and rate-supported hospitals. The Medico-Psychological Association proposed that the Government grant should be payable to local authorities throughout the country on the certificate of the Board of Control. From the humanitarian point of view, he urged that there should not be too great differentiation between cases of chronic lunacy and acute mental disorder. He hoped that the British Medical Association's Memorandum would mark the beginning of a new era.

Reports of Societies.

VITAMIN DEFICIENCY AND ITS EFFECT ON HEALTH.

A SPECIAL discussion on non-specific disturbances of health due to vitamin deficiency was opened at a meeting of the Royal Society of Medicine on February 16th. The PRESIDENT (Sir StClair Thomson) was in the chair. The whole of the time was occupied by four opening papers, and when the question was put from the chair whether the general discussion should be resumed the same evening, after a short adjournment, only ten hands were held up in favour of this course. It was decided, therefore, that the discussion should be resumed at a later date, by which time members would have the advantage of seeing in printed form the papers which had been read, and which, as the President and Dr. William Hunter stated in some complimentary remarks at the close, together constituted one of the most remarkable contributions to the subject of vitamins hitherto made.

Accessory Food Factors in General.

Dr. LEONARD WILLIAMS, in a general survey of the whole question, said that a very superficial study brought one face to face with the impossibility of putting a vitamin in a water-tight compartment. The vitamin was not an entity, it was a subtlety; it could not be considered alone, it must be considered in relation to certain other things lying outside the orthodox trinity of fat-soluble A, water-soluble B, and antiscorbutic C. The first of the supplemental substances were the mineral salts. If the mineral salts in the dietary were present in adequate amount or were properly balanced, the absence or the deficiency of vitamins commonly so called mattered very little. Here he quoted at length from Dr. John Boyd Orr's paper in the BRITISH MEDICAL JOURNAL of September 20th, 1924 (p. 504), and then went on to ask where these essential mineral salts were to be obtained in their proper balance if not from untampered vegetable products. Then there were the catalysts, which effected chemical changes without themselves taking part in such changes. These were described by the late Sir William Bayliss, and a study of his work suggested that catalysts as found in the untampered state were essential to the utilization, not only of mineral salts, but of proteins, fats, and carbohydrates. Further, the paramount importance of friendly bacteria had to be recognized, for it was only these which produced the enzymes. And where were catalysts or enzymes to be obtained except from Nature's laboratory? Chlorophyll also had to be reckoned with. All life depended upon chlorophyll, and it was by the vegetable kingdom alone that this was manufactured. Just as properly balanced mineral salts had been shown to be an adequate substitute for vitamins, so had sunshine. Sunshine played the essential part in germinating grain—in converting a body which was to all appearances dead and devoid of vitamins into a substance which was bursting with them. Finally there was the question—a very dangerous one to touch on at that moment, and especially in that hall—of electricity. Mineral salts were electrolytes, colloids had an electrical discharge, enzymes were colloids. These were facts concerning which there was no dispute. He pleaded therefore for the inclusion within the ambit of vitamins of mineral salts, catalysts, enzymes, chlorophyll, violet rays, and electricity. Each and every one of these was completely destroyed by heat, or at least was so profoundly altered thereby as to be no longer recognizable as a product of Nature's laboratory. It was these which constituted the power of resistance of the body to devitalizing influences. All disease, whether microbic or metabolic, was what mathematicians called a "function" of cookery and concentration. He was not a vegetarian, even in theory, although he had been accused of living on raw carrots alone. All that he did was to advocate the obvious—namely, that the forces and substances which he had mentioned must be represented in the diet, and could not be adequately represented or balanced so long as people failed to recognize that raw fruits and raw vegetables were essential. Not vitamins alone, but the other things which acted in conjunction with vitamins, and without which vitamins were powerless, must be taken into account. These other things were like the berries on the mistletoe, and he did not need to remind them that "it's the berries as does it."

Disturbances of the Gastro-intestinal Tract.

Lieut.-Colonel R. MCCARRISON spoke of the effects of vitamin deficiency on the gastro-intestinal tract, and drew attention to the results of some experiments on monkeys which he carried out six years ago (BRITISH MEDICAL JOURNAL, 1919, i, 177, and ii, 36). These experiments led him to suggest that vitamin deficiency in food was an important factor in the causation of a number of the gastro-intestinal disorders so common at the present day, including irregular action of the bowels, whether in the direction of intestinal fluxes or of constipation, infection of the gastro-intestinal tract, chronic digestive disturbances with impaired absorption and assimilation of food, gastro-intestinal stasis, mucous disease in children, and colitis in adults. He prefaced his account of these experiments by three remarks: (1) that vitamin deficiency of lesser degree when protracted over longer periods of time might give rise to effects similar to vitamin deficiency of greater degree over a shorter time, although death in the former case, to judge from the animal experiments, was not usually from acute vitamin starvation, but from some intercurrent infection; (2) that there was an extraordinary variation in individual idiosyncrasy among animals of the same species and age to chronic vitamin starvation; and (3) that the results of such experiments as he had to bring before the meeting varied with the animals used and with the pathogenic flora of the intestine. The animals employed in these experiments were monkeys which, up to a few days before, were living their natural life in the jungles of Madras. A number of them were used as controls, and were given a varied diet with abundance of vitamins; the others were given the same diet after it had been subjected to a sufficient degree of heat in the autoclave to reduce its vitamin value very markedly. Some of these latter were given an item of fresh food to ensure a sufficient supply of vitamin C, or two items to ensure a sufficient supply of vitamin C and vitamin A; the food of all was deficient in vitamin B. The control animals remained in good health, the health of the others soon showed signs of impairment, one of the earliest and most constant symptoms being diarrhoea, with or without mucus and blood in the stools. Nine out of the

eleven animals treated in this way exhibited a severe intestinal flux. Five of the animals suffered from dysentery, and it seemed evident, after examination of the controls also, that many of the animals had been "carriers" of the organism of amoebic dysentery when the experiment commenced, and that the amoeba had remained harmless to the well fed animals, while it had attacked those whose food was deficient in vitamins. The first effect of such deficiency appeared to be to render the intestinal tract susceptible to invasion by bacterial or protozoan agents. It rendered pathogenic to the ill fed host organisms that might be non-pathogenic to the well fed. The monkeys survived from fifty-one to a hundred days. He described and illustrated the pathological changes discovered on opening the tract. The gross anatomical lesions included enlargement of the mesenteric glands, dilatation of the stomach, congestion of the gastro-intestinal tract, with ballooning of various parts, and marked thinning of the muscular walls of the colon. In the colon the changes were found to consist in greater or lesser degrees of colitis, which was the most marked and one of the most constant of the morbid changes present. He also described the changes found in various parts of the tract on histological examination, and went on to say that not all the changes were present in all the deficiently fed animals; in general they were more pronounced and frequent in animals whose food was deficient in vitamin A as well as in vitamin B, but each individual was more or less a law unto himself in regard to the effects of vitamin want. He touched on the work of Cramer and of Gross on rats fed on synthetic diets, and described the very recent work of Pappenheimer and Larimore, who had recorded the occurrence of gastric lesions in 55 per cent. of rats fed on synthetic diets in which the only known deficiency was want of vitamin A. He claimed, in conclusion, that derangements in function of the gastro-intestinal tract, and its greatly increased susceptibility to attacks by bacterial and other pathogenic agents, which had been shown to result from vitamin deficiency in monkeys and rats, was to be regarded as an important factor in the causation of the common intestinal disorders of mankind.

General Experimental and Pathological Aspects.

Dr. W. CRAMER urged that there was no fundamental distinction between specific and non-specific impairments of health due to vitamin deficiencies. The so-called specific deficiency diseases were merely the last links in a chain of events of which the so-called non-specific impairments were the earlier ones. When vitamins were withheld from the diet there ensued loss of appetite, constipation, diminished nitrogen retention, progressive atrophy of the lymphoid tissue, and other disturbances. He likened the action of vitamin B to that of the hormones as having a specific stimulus the absence of which led to atrophic changes. A striking feature in mammals suffering from vitamin B deficiency, even in its most advanced stages, was the absence of spontaneous infections, though in the case of experimental infections produced by injections of bacteria subcutaneously the resistance was said to be diminished in subjects suffering from vitamin B deficiency. Animals with vitamin A deficiency presented exactly the reverse condition: they always developed spontaneous infections, beginning in the mucous membranes of the intestinal and respiratory tracts and in the eye, although the general defences of these animals remained unimpaired until long after the local infections were established. The same diminished resistance to local infections had been observed in children, where xerophthalmia was always accompanied by, and sometimes preceded by, an infection, usually of the lungs. When, in badly nourished children, general infections occurred, such as pneumonia and enteritis, these were just as much specific deficiency diseases as the xerophthalmia. The speaker drew attention to the condition of "vitamin underfeeding," where the intake of vitamins was sufficient to enable the animals to grow and reproduce themselves, but where, nevertheless, health was impaired without any obvious symptoms of disease, as compared with animals receiving a more abundant supply of vitamins. He pointed out the harmful effect of vitamin underfeeding in pregnancy. It was frequently asserted that a civilized community living on a freely chosen mixed diet was in no danger of suffering from a deficient vitamin intake. This was scarcely borne out by the work of Blegvad and Widmark in Denmark, whose population, owing to economic factors, had suffered from an extensive vitamin deficiency, shown by the decreasing consumption of milk and the increasing consumption of margarine. But similar conditions existed in this country, where the poorer classes, owing to their consumption of margarine, which was free from vitamin A, and of white bread, which was free from vitamin B, were cut off from some great natural supplies of vitamins. He believed that the wide extent to which this affected the health of the community was not at present recognized, partly because it was generally held and endorsed by leading authorities that the supply of vitamins was bound to be adequate if there were no specific deficiency diseases. This was an error, and the speaker maintained, on the contrary, that the organism, especially the young organism, which required for its full functional development an abundant supply of vitamins, suffered manifold disturbances of function with any degree of restriction of the vitamin intake.

Bone Marrow Changes.

Dr. G. M. FINDLAY referred in particular to the condition of the leucoblastic tissues, more especially those concerned with the formation of polymorphonuclear leucocytes, in connexion with the breakdown of the defence mechanism of the body following upon vitamin want. In animals fed on diets deficient in vitamin A it was rare to find lesions in the leucoblastic bone marrow, and correlated with this absence of degeneration in the marrow was the fact that there was no reduction in the number of leucocytes in the blood stream in this form of deficiency. In fact, after the onset of keratomalacia, it was not uncommon to meet with a polymorphonuclear leucocytosis. At the same time there was a fall in the bactericidal power of the blood which occurred in all acute infections. The infections associated with a deficiency of vitamin A in the diet were thus solely due to a local breakdown at the sites of infection—the conjunctiva and the epithelial lining of the respiratory and intestinal tracts. In animals fed on diets wholly deficient in vitamin B numerous small haemorrhages occurred in the bone marrow. When the diet was not wholly lacking in this vitamin a condition of gelatinous degeneration occurred in the bone marrow, with reduction in number of the leucoblastic cells. In acute vitamin B deficiencies there was a reduction in the total number of leucocytes in the blood stream, though this reduction affected only the lymphocytes. While the opsonic power of the blood and the capacity to form agglutinins, haemolysins, bacteriolysins, immune body, and antitoxin remained unimpaired, it was usual to find a fall in the bactericidal power of the blood in animals fed on diets deficient in vitamin B, which fall appeared to be correlated in some way with the fall in body temperature occurring as the result of diets lacking in this vitamin. Animals with reduced body temperature lost their resisting power to certain bacterial infections. Under normal conditions pigeons were totally immune to infection with the pneumococcus and meningococcus, but if their body temperatures were reduced to below 40° C., either by the action of some antipyretic drug or by feeding on a diet deficient in vitamin B, then the intraperitoneal injection of pneumococcus or meningococcus was followed by a fatal septicaemia. In the case of vitamin C, guinea-pigs with acute scurvy showed many small haemorrhages in the bone marrow. In chronic scurvy in this animal—a condition characterized by no definite clinical symptom—the bone marrow underwent either gelatinous degeneration or a fibrotic change which was not confined to the epiphyseal ends of the bones. If healthy guinea-pigs and guinea-pigs with chronic scurvy were given small intraperitoneal injections of organisms such as pneumococcus, *B. coli*, or staphylococcus, both groups survived, but when the number of such organisms was increased the animals with chronic scurvy died, while the controls survived. The increased susceptibility to infection occurring as a result of these vitamin deficiencies, however, did not apply to all bacteria, because diets lacking in vitamin did not modify the course of experimental tuberculosis in guinea-pigs or rabbits.

SUBACUTE COMBINED DEGENERATION.

At a meeting of the Section of Neurology of the Royal Society of Medicine on February 12th a discussion was held on the etiology and treatment of subacute combined degeneration of the spinal cord.

Dr. A. F. HURST, in opening the discussion, emphasized the intimate association between Addisonian anaemia and subacute combined degeneration of the spinal cord. Three factors, he said, were to be considered in the pathogenesis—(1) achlorhydria, (2) oral streptococcal infection, and (3) duodenal streptococcal infection. The achlorhydria might in turn be constitutional or congenital, or secondary to lesions of the stomach such as atrophic gastritis, carcinoma, or occurring after gastro-enterostomy. The achlorhydria might be not only congenital, but he believed it was also often a familial condition. In the last event it was interesting to note the occasional familial incidence of Addison's anaemia and subacute combined degeneration. The factors concerned in the oral infection were pyorrhoea alveolaris, streptococcal infection of the jaws, tonsillitis, and the Hunterian glossitis. He especially emphasized the frequency of the glossitis, which he had almost invariably found since Hunter had called attention to this symptom. These two factors—oral infection and achlorhydria—led to a streptococcal infection of the duodenum. This resulted in the production of specific toxins which might be haemolytic or neurotoxic. In the first case anaemia of a particular kind was produced. He wished to remark on the diagnostic importance of two features in the blood picture, anisocytosis and megalocytosis, and referred to the work of Price-Jones and to the value of his charts. By means of his methods they had been enabled to make a diagnosis at a much earlier stage than was possible when chief reliance was placed on the high colour index or the percentage of haemoglobin. He stated that the anaemia present in subacute combined degeneration was always of the Addisonian type. He stressed the importance of prophylaxis, whereby persons who were found to be the subjects of a congenital achlorhydria might be prevented from developing Addisonian anaemia or subacute combined degeneration by taking sufficient dilute hydrochloric acid for the rest of their lives. In treatment he aimed at attacking the etiological factors as follows: the administration of hydrochloric acid for the achlorhydria; two drachms of the dilute acid were to be given in about twelve ounces of water three times daily, the first dose to be given in the morning on an empty stomach. Secondly, the removal of any foci of oral or pharyngeal sepsis. He said that such removal must be radical, but if the patient were seriously ill he advised a preliminary course of streptococcal vaccines. For the duodenal infection he used autogenous vaccines, and thought highly of the value of sour milk and charcoal as intestinal antiseptics. For the anaemia he gave arsenic, or in severe cases blood transfusions. Dr. Hurst's remarks were illustrated by several tables of great interest setting out statistics of cases of achlorhydria, Addisonian anaemia, and subacute combined degeneration.

Dr. MACBRIDE said that he and Dr. Carmichael had collected the records of 199 cases of subacute combined degeneration which had been in the National Hospital for the Paralysed and Epileptic, Queen Square. In 53 of these the diagnosis was confirmed by autopsy. The average age at onset had been found to be 47½ years, the extremes being 26 and 70 years; 102 were males and 97 females. Heredity appeared to play no part in the etiology. No definite predisposing cause had been identified and no attacks of previous anaemia had been noted. In 78 per cent. of the cases the primary symptoms had been neurological, such as stiffness or numbness of the legs, while in the remaining 22 per cent. the primary symptoms could be referred to the anaemia. Alimentary symptoms were uncommon; 12 per cent. had been edentulous, and 15 per cent. had been noted to have a sore tongue. In 14 cases free hydrochloric acid was found in the gastric juice by fractional analysis. A clinical resemblance to myxoedema had been observed in many cases, and some of these had taken large doses of thyroid extract, as much as 36 grains a day, without signs of thyroid intoxication. He thought that Dr. Hurst's theory of the essential importance of achlorhydria was untenable, and was inclined to think that some disturbance of endocrines was present. In treatment he had used arsenic, both by the mouth and by intravenous injections of novarsenobillon. He had not seen benefit follow the treatment of oral sepsis nor the exhibition of large doses of dilute hydrochloric acid. In none of the cases which they had studied had any change in the neurological signs taken place as the result of treatment.

Dr. WILLIAM HUNTER thought that both pernicious anaemia and subacute combined degeneration were more common now than formerly. He wished to emphasize especially the infective lesions in these diseases, and particularly the glossitis, of which he showed many lantern slides demonstrating the conditions of the tongue and streptococci in the deeper parts of the tongue. There was a definite seasonal incidence for the onset and the recurrences of the anaemia—namely, about the months of July and August. He considered that the prognosis of the anaemia was better now than some years ago.

Dr. KNOTT spoke on the bacteriological flora of the duodenum in these cases, and said he had been impressed with the ease with which haemolytic streptococci could be found even in direct films. Recent experiments on rabbits had shown that a grave anaemia could be produced by feeding with haemolytic streptococci after the administration of alkalis.

Dr. COLLIER mentioned one case of subacute combined degeneration which occurred in a patient the subject of chronic lymphatic leukaemia. He thought that Dr. Hurst's teaching on one point was dangerous—namely, that patients with Addisonian anaemia who presented symptoms of numbness and tingling in the extremities were necessarily the subjects of subacute combined degeneration, or even bound to develop it later. He had himself never seen a typical case of pernicious anaemia go on to subacute combined degeneration of the cord. He had only seen one case definitely arrested by treatment, and that one had subsequently relapsed.

Dr. BARNES was unable to accept Dr. Hurst's views *in toto*. He alluded to the difficulties of clinical diagnosis. Out of twelve cases which he had examined lately by the methods advocated by Dr. Hurst, he thought that Dr. Hurst would have rejected nine as not filling the bill truly. One of these had an increase of hydrochloric acid in the gastric juice by fractional analysis. He thought that there might be different types of the disease, and had found in his experience that the cases which began with spastic signs tended to run a less acute course than those where signs of ataxia and gross defects of sensation were more prominent early signs.

Dr. ELLIS also thought that Dr. Hurst's views must be held to be non-proven, especially as to the pathogenicity of the streptococci. He related the details of a case of great interest where a man had a partial gastrectomy for a growth of the stomach (proved to be carcinoma on section) in 1909; now he presented the signs of subacute combined degeneration of the cord with a sore tongue, achlorhydria, and a blood picture suggestive of pernicious anaemia.

In a brief reply Dr. HURST maintained his own views, and said that he was unable to explain the statistics from the National Hospital.

ETIOLOGY OF MINER'S NYSTAGMUS.

THE meeting of the Section of Ophthalmology of the Royal Society of Medicine on February 13th was devoted to a discussion on the etiology of miner's nystagmus. Sir ARNOLD LAWSON (President) was in the chair, and before the discussion started he alluded to the loss which ophthalmology had sustained in the death of Sir George Anderson Critchett. He said that as a colleague he would be remembered for his straightforward character, his unvarying courtesy, and his ready wit. Mr. ERNEST CLARKE also paid a tribute.

Dr. T. L. LLEWELLYN (Nottingham), in opening the discussion with some general considerations, said that miner's nystagmus was an occupational disease of the general nervous system, not merely a local disease confined to the ocular muscles. It affected chiefly coal-face workers, but

25 per cent. of all men employed underground—judging from an examination of large numbers of workmen—had some signs of the condition, and this reservoir of latent cases must always be borne in mind. The incidence of certified cases had risen sharply since the inclusion of miner's nystagmus in the schedule of industrial diseases, and especially since the broadening of the definition in 1913 and the difficult economic conditions of the post-war period. Deficient illumination of the coal-mine owing to the low candle-power of the lamps used and to the absorption of light by the coal was the chief factor in the production of the disease. Delay in dark adaptation and an increased retinal susceptibility were frequent symptoms. The determining influence of light conditions was evidenced by the greater prevalence of the disease in winter, the increased recovery rate in summer, and the onset of symptoms after dark. The disease was more prevalent in urban than in rural districts, and in some seams than in others. The depth of the workings and the thickness of the seams did not play so important a part as the age of the workman, the difficulty of working, the character of the shale, and the attention paid to the disease itself. He dwelt upon the importance of the personal factor, and upon the tendency of men suffering from illness or accident to attribute their incapacity to the onset of a nystagmus which they had had for years. The disease was often mimicked and readily brought on by suggestion. While most cases showed no evidence of a neurosis, a group of cases had certain neurotic symptoms associated with well marked signs of the disease, and in another group the neurosis was dominant and was accompanied by slight or indefinite symptoms of nystagmus. When a neurosis was present it differed in no way from the neurosis found in other conditions, and its treatment was the same. The provision of suitable work helped the recovery rate. Sufferers rapidly deteriorated if they were allowed to remain idle. High as were the figures for new cases in 1923, they were lower than in 1922, and he believed they would prove to be lower still in 1924. Colliery owners were now alive to the importance of prevention, and large sums were being expended on the provision of lamps giving larger candle-power.

Physiological Consequences of Very Dim Illumination.

Professor J. S. HALDANE thought that it might now be regarded as clearly established that miner's nystagmus was brought about by using the eyes for guidance in muscular movements when the absolute (not relative) differences in luminosity of the objects seen were extremely low. He did not propose to discuss the evidence in favour of this conclusion or against other theories as to the cause of miner's nystagmus, but only to draw attention to a certain physiological peculiarity of vision where the illumination was extremely feeble. It seemed to him that this peculiarity furnished a key to the understanding of how miner's nystagmus was produced. Within wide limits of illumination the acuity of vision was practically constant, but it began to fall off seriously with low illumination until, when the illumination was sufficiently low, it was not possible to distinguish a white or a black object. It was also well known that with good or even moderate illumination acuity of vision was much greater at the centre than at the periphery of the field of vision, but with very low illumination this was no longer the case. One great peculiarity of foveal vision, with sufficient luminosity, was that the impression on the consciousness of an object on which the eye was focused was a lasting one—the person continued to see it—whereas in the peripheral visual field objects were perceived and then faded out of consciousness. If the eyes, for instance, were focused steadily on a fairly bright star, the surrounding stars would fade out of the vision except those which were twinkling, but in the twinkling stars the twinkle—which was only a variation in luminosity—became enormously exaggerated. A twinkling star, seen in the periphery of the visual field, with the eye fixed, disappeared completely from vision during the intervals of the twinkling. With very low luminosity the foveal vision lost completely its lasting character, and the conscious impression was even less lasting than with peripheral vision. Therefore the eye, trying to focus on the object, wandered about, picking the object up momentarily with the fovea and losing it again. In all probability the fatigue thus induced was the disturbance which led up to the condition of miner's nystagmus. The nystagmus might perhaps be regarded as a tendency to a bad habit brought about by the fact that with very low illumination the eye was always moving. With ordinary hand safety lamps in the mine the illumination of the working space was not only very low, but the actual luminosity was extremely low also. There was no nystagmus among those who worked in mines where oil cap-lamps were used, because with such lamps the illumination of the miner's working area was far greater. It seemed clear that unless the illumination was greatly increased either by the use of cap-lamps or by much more powerful hand lamps, nystagmus would continue to be prevalent among coal-miners in this country. The illumination required to prevent nystagmus was such as to permit of lasting foveal vision, and therefore of fixing the eye on the object seen. This fixation was necessary for the proper guidance of any tool the miner was using. To judge from a number of different observations, the threshold illumination below which lasting foveal vision became impossible varied considerably in different individuals. This might be related to varying liability to nystagmus. With the old-fashioned oil safety lamps about half the miners working on the coal face showed signs of nystagmus, though few of them had serious symptoms. Visual acuity was, of course, greatly affected by defects of accommodation. He did not think, however, that it was the falling off of visual acuity, but rather the greatly diminished lasting power of foveal vision which led to nystagmus. Professor Haldane added that as it was still believed by some that miner's nystagmus was due to gases in coal-mines, he would like to take the opportunity of saying that, so far as he could see, the action of abnormal gases could have nothing whatever to do with the causation.

Quality of Illumination in Coal-mines.

Mr. H. S. ELWORTHY (Ebbw Vale) said that what was needed in coal-mines was a better quality of illumination, not necessarily a higher candle-power. Attention was drawn to the importance of the quality of the light by observing that when an oil lamp was taken into a mine not only was the candle-power diminished, but the remaining light was changed in quality, being deprived of yellow and orange rays, and retaining only a pale-bluish illumination. In the case of the Marsaut safety lamp the percentages of red, green, and blue rays with the lamp at the surface were respectively 71, 22, and 7, and with the same lamp in the mine the figures were 69, 20, and 11; at the same time the candle-power diminished from 0.48 c.p. at the surface to 0.21 c.p. in the mine. He had experimented with yellow tinted glasses, and had found it possible, with the Oldham lamp, to change the quality of the light so that instead of a proportion of blue rays amounting to 17 per cent. he got the proportion with the tinted glass down to 11 per cent., at the same time increasing the proportion of green rays from 31 per cent. to 38 per cent. But he still wanted the blue constituent in the Oldham lamp to be further reduced to be about 6 per cent., as in the carbon filament, where the proportions of red, green, and blue were respectively 67, 27, and 6 per cent., and an excellent quality of light was forthcoming, very much like that of a candle. The Ebbw Vale Company had used yellow-tinted glass for a year, and the result had been quite satisfactory, although the ideal quality, which was that of the carbon filament, was not yet attained, and the total amount of light was still below the minimum desirable. Because a lamp gave 1 c.p. at the surface it was useless to assume that it gave this to the collier at his working place; it gave him, in fact, very much less. The minimum of candle-power required to bring a steam-coal pit up to the level of safety was 0.9 c.p. But with this yellow-tinted glass the Ebbw Vale miners had suffered to a much less extent from nystagmus. Some of the worst cases of nystagmus had loss of central vision, and it seemed to him that this might be due to the focusing upon the eye for too long a period of ultra-violet rays from the lamp, thereby exhausting the visual purple or otherwise damaging the eye. The yellow-tinted glass acted as a filter to prevent ultra-violet radiation from emerging.

Later in the discussion Mr. G. J. SACHS pointed out that even with the clear glass of the lamp the ultra-violet rays would be practically cut out, and that lead glass of 1½ mm. thickness would absolutely eliminate any dangerous rays.

Compensation in Miner's Nystagmus.

Professor E. L. COLLIS (Cardiff) stated the view that the increased incidence of nystagmus was apparent rather than real. An increase in compensation claims had occurred owing to the disease being an occupational neurosis—that is, a complex of a physical symptom and an underlying neurasthenia. The physical symptom—oscillation of the eyeballs—was present, without causing inconvenience, in 20 to 30 per cent. of miners working in poor illumination. In Belgium incapacity for nystagmus soon terminated, and the limit of time for which compensation was payable was six months. In this country the period of compensation was not limited. When the disease was so scheduled that a claim could be maintained on neurasthenic symptoms alone, the number of claims, particularly those of old standing, rose. In 1921 there were 1,913 new cases, and the continued cases on the books were 4,804, of which 645 had lasted for over five years, and 89 of these for over ten years. When economic factors in 1922 and 1923 brought possible earnings and compensation payments somewhat close together, and there was also a fear of unemployment, a still greater rise in the number of claims occurred. The course of events was similar for claims on account of miner's beat-knee and beat-hand (septic infections) and non-fatal accidents, but in the case of fatal accidents no increase took place—a fairly certain indication that no real increase in non-fatal cases had occurred, but that the increase in claims was due to economic factors. The excessive rise in old standing claims of nystagmus, which were nearly all based on neurasthenic symptoms, with no oscillation of the eyeballs, supported this contention.

Colliery Administrative Experience.

Mr. G. J. BINNS (managing director of the Midland Colliery Owners' Mutual Indemnity Company) said that it must be assumed that a very large number of cases which went down as nystagmus were not really nystagmus. Certifying surgeons were naturally not experts in nystagmus, and many colliery proprietors did not take steps to check the certificates. He gave an account of appeals which had been made by his company in 32 (out of a total of 428) claims on account of nystagmus, and of that 32 the company had won 28. Someone had said that nystagmus was caused through too much attention being paid to it. He did not subscribe to this, but he felt that the condition was one which needed the right kind of attention, sympathetic and skilful, not the kind which consisted in saying to the man, in effect, "You will go blind if you go down the pit again." The Under-Secretary for the Home Department in the last (the Labour) Government (Mr. Rhys Davies) had stated that the Home Office was prepared to amend the definition of nystagmus if colliery owners would guarantee to find light work for nystagmus patients. It was very difficult, however, to find surface work for men thus disabled.

Mr. H. MITTON (mining engineer to the Butterley Colliery Company) gave figures for eight collieries employing 7,000 men underground. The incidence of (certifiable) miner's nystagmus in 1924 was 0.56 per cent., and in 1913 it was 0.95 per cent. He attributed the decrease to the improvement of illumination.

Effect of Mine Gases.

Dr. F. ROBSON (Penarth) gave figures from 1908 onwards to show that nystagmus was growing. The numbers now were getting huge. The whole coalfield had been seriously affected. This was not a condition which could be put down to neurasthenia. The increased knowledge of coal as a result of the work of the coal chemist had helped the clinician to visualize the possible relationship of coal to neurological disturbance. The miners among whom nystagmus was mostly found were those working on bituminous coal, and it seemed to be a fair inference that the high incidence of nystagmus was associated with certain compounds of coal which were to be found specially in the bituminous variety. Coal of this kind had also the highest percentage of volatile matter. He pointed out further that nystagmus did not affect miners in other minerals, no matter at what depth they worked nor what kind of lamps they used. Nystagmus was an affliction of the coalfields. He believed that the proportion of volatile matter yielded by coal might play an important part in causation.

The Personal Factor.

Mr. G. H. POOLEY (Sheffield) said that the personal factor was of two kinds—that of the observer and that of the person observed. In the case of the observer the personal factor entered to a great extent. Some men formed a theory and then looked for facts to support it. The incidence of the disease could only be determined by the examination of a number of men working in a particular mine, and as far as possible under the actual conditions of their work, and then discovering what percentage of them had got the disease and the degree to which they had got it. He had been carrying out some experiments to discover what the normal eye could see at an illumination of 0.00006 c.p. At that very dim illumination the normal eye could still detect colour; there was a visual acuity of about 1/72 of the normal. A good deal of flicker was experienced, fatigue was very marked, and a moving object was more readily seen than a stationary one. The colour best seen was red, green was detected less readily, and blue and yellow less readily still. The eye was so readily fatigued in the dim light and retained fixation so badly that there was no doubt a tendency, even in the case of the healthy eye, to oscillate under such conditions. He laid stress upon the point that a man was able to work in spite of a very marked degree of oscillation. Men whose eyes were never still, and who had a definite undulatory oscillation of their eyes, could still not only go on getting coal regularly and steadily, but in many cases could play cricket in quite good teams. With extremely little sight men could earn full wages at the coal face. Many of the men who went on compensation for nystagmus were suffering from quite other ailments, but found it to their monetary advantage to go on workmen's compensation for nystagmus rather than on sickness benefit under the National Insurance Act. A good deal of the so-called neurasthenia was a *maladie imaginaire*.

The discussion ended on this question of the personal factor. Dr. M. CULPIN said that nystagmus *per se* did not disable. The photophobia, the head tremors, the extreme convergence of the eyes, and the night blindness were all seen among the mental results of the shocks and stresses of the war. Everyone knew by now the kind of man who fell a victim to these troubles. There was an epidemic of night blindness among soldiers. The cases should be treated for the neurasthenia, and it would disappear and with it the nystagmus. Dr. C. F. HARFORD drew a parallel between shell shock and nystagmus, and said that search must be made beyond the factors of illumination, or posture, or refractive errors; the personal element—the moral—must be considered. Dr. H. W. EDDISON also considered that a strong psycho-neurotic element was an etiological factor. He commented upon the fact that many cases experienced an acute exacerbation on examination or when attention was directed to their condition.

ANAL AND RECTAL FISTULAE.

AT a meeting of the Section of Surgery (Subsection of Proctology) of the Royal Society of Medicine on February 12th, with Mr. F. SWINFORD EDWARDS (President) in the chair, a discussion took place on the subject of fistulae.

The PRESIDENT said that he looked upon the treatment of fistula as a specialty within a specialty. He had come across most excellent proctologists in every other respect who yet failed miserably when dealing with fistula of the horseshoe type. Of all the lesions which the proctologist was called upon to treat none would tax his powers more heavily. It took years of experience for a man to become thoroughly familiar with fistula of the horseshoe variety—a form encountered much more frequently than was generally supposed. The reasons for the frequent failure of operative interference were the lack of topographical knowledge of the particular case, with a failure to lay open the whole

track or tracks; the non-recognition of fistula due to caries of the coccyx or the lodgement of a foreign body in a sinus which the surgeon had failed to lay open; the special difficulties attaching to tuberculous fistula; omission to remove all overhanging margins of skin and mucous membrane; injudicious after-treatment, such as painful and too frequent dressings and over-long confinement to bed. To those about to operate for fistula he urged a careful examination by palpation; a probe was rarely necessary. Where the external orifice was behind an imaginary line drawn transversely across the centre of the anus the internal orifice would be found usually as a depression between the two sphincters in the mid-dorsal line, and this pointed to a horseshoe or semi-horseshoe fistula. When dealing with a horseshoe fistula care must be taken not to overlook the deep sinus which might run up at right angles; this must on no account be laid open into the bowel. It was a curious fact that where a horseshoe fistula had two internal openings, the lower one between the sphincters was to be felt as a depression, whilst the upper one projected into the rectum and felt like a small wart or papilla. He emphasized the importance of the two-stage operation; the first procedure was to lay open all tracks into the main posterior sinus, and then, after three or five weeks, when the wounds were healed, a slight secondary operation, dividing the main dorsal sinus, which, of course, included the external sphincter, completed the cure. With regard to excision with immediate suture, he had tried this in only two cases, where the fistula was fairly superficial and straight, and in neither case did he get complete primary union. The shorter convalescence hardly compensated for the additional risk involved, and he could see no reason for supplementing the old method of healing by granulation. The secret of success in operating on horseshoe fistula was the antero-posterior dorsal incision.

Sir CHARLES GORDON-WATSON, who mentioned that at St. Mark's the average number of fistula operations was 150 a year, said that with regard to tuberculous fistula the textbooks were apt to mislead the practitioner by implying that this was a hopeless condition. Many fistulae were tuberculous without the patient being tuberculous. Of course, where the patient was tuberculous, and his lungs or other parts of the body were involved, a tuberculous fistula did very badly, but where he was not tuberculous the mere fact that his fistula was invaded with tubercle bacillus was no barrier to a cure, given correct surgery and after-treatment. With regard to the posterior track up the bowel resulting in a secondary opening in the horseshoe fistula, he had hesitated long as to proper treatment. It was a most dangerous thing to open up completely into the bowel. The majority of these tracks were submucous, but when they were not submucous and were very high they often took an extraordinarily long time to granulate up. He had once or twice been bold enough to slice into the bowel, and he did not think there had been ultimate incontinence, although there had certainly been temporary incontinence. With regard to primary suture, he thought that this question had been influenced by experience in the war, when a great amount of work of a very important character was done. At one period in the war a certain number of beds at one of the casualty clearing stations were set apart solely for the purpose of investigation in connexion with primary suture of wounds, and he thought that something had been learnt about primary suture in consequence, and that better results were now forthcoming than could have been obtained without that experience. In the case of a direct fistula an excellent result could be obtained by primary suture, and the convalescence considerably shortened. A little while ago he brought forward a series of seventeen cases of primary suture; the results were all exceedingly good, with a high average of primary union. Some were done by excision and primary suture treatment with flavine, and some with excision and primary suture treatment with bismuth and iodoform paste. Nevertheless, the indiscriminate use of this method was very dangerous. If it became a routine it would lead to disasters, and its proper use required a considerable experience of cases and an ability carefully to select them. He had found Finsen light stimulate sluggish lesions to heal.

Mr. W. E. MILES said that the average general surgeon did not realize that there were more types of fistula than one. The ordinary textbook would speak of fistula as having the following varieties: a complete fistula consisting of an external opening on the skin surface, an internal opening into the rectum or anal canal, and an intermediate sinus or track; a blind external type of fistula, with no internal opening; a blind internal fistula; and a bilateral fistula. That was all very well in its way, but it did not throw much light on the subject. They all knew that a fistula was preceded by an abscess, and the track of the fistula was the unobliterated abscess cavity. Abscesses were found in four chief positions: the subcutaneous abscess, the submucous abscess, the ischio-rectal abscess, and the pelvi-rectal abscess. Each of these abscesses became a fistula, and each of the ensuing types of fistula might present any of the varieties to which he had just alluded. There might be a complete subcutaneous fistula or a subcutaneous fistula with a single opening, and so forth. Very often one found an ischio-rectal abscess, and when it was opened up one always got a fistula. The mere laying open of an ischio-rectal abscess did not of necessity cure the abscess, but left the fistula behind it. Some surgeons would say that a fistula whose internal opening was at a level of two or three inches above the anal verge might be laid open with impunity, whereas other surgeons would say, with equal truth, that it was a most dangerous thing to do, and that if one laid open such a fistula according to textbook instructions most disastrous consequences would ensue. Here were two opposite views which it was hard to reconcile, but both were right and both wrong. In the one case what was being spoken of was the submucous fistula entirely, and in the other case the pelvi-rectal fistula.

Mr. ASLETT BALDWIN favoured ionization treatment in some cases. With a callous surface which would not heal, no matter whether simple or tuberculous, ionization with zinc, using the positive pole, was very effective.

Mr. IVOR BACK said that he was inclined to classify the varieties as three: a fistula with an internal opening pure and simple; a fistula with a high internal opening, which was always secondary to the opening between the two sphincters, and might be at any part of the anal canal or in the rectum; and a pelvi-rectal fistula, which last, to his mind, had nothing to do with the rectum whatever and was an indication of some disease higher up. With regard to primary suture, if the stitch was taken down below the deepest cut area one would, in a large proportion of cases of straight fistula, get primary union.

Mr. L. E. C. NORBURY spoke of success in the treatment of tuberculous fistula; and Mr. SWINFORD EDWARDS, in a closing remark, expressed the view that pelvi-rectal abscess was very rare and was the result of gonorrhoeal prostatitis, and, of course, the treatment must be extrarectal.

TREATMENT OF PLACENTA PRAEVIA.

AT a meeting of the Edinburgh Obstetrical Society held on January 14th, the President, Professor B. P. WATSON, in the chair, a discussion was held on the treatment of placenta praevia.

The PRESIDENT and Dr. DOUGLAS MILLER gave a statistical analysis of 254 cases of placenta praevia, of which most had occurred in the Edinburgh Royal Maternity Hospital. In 25 of the cases the mother died, representing a maternal mortality of 9.8 per cent. In explanation of the high mortality incidence it was stated that several of the fatal cases had been sent into hospital from long distances and the patient had arrived moribund from loss of blood. The causes of maternal death were as follows: Ante- and post-partum haemorrhage in 13 cases; sepsis, 6 cases; and one of each of the following: myocarditis, eclampsia, duodenal ileus, post-partum collapse and mania, embolism, and ante-partum haemorrhage, the last two patients dying undelivered. Including stillbirths and neo-natal deaths the foetal mortality was 64 per cent. In 81 cases the situation of the placenta was central, the maternal mortality being 22 per cent. and the foetal 82 per cent. The maternal mortality in the partial cases was 4 per cent. and the foetal 59 per cent. Consideration of the results of the different

forms of treatment appears to show that the best results for mother and child were obtained by the two extreme methods of treatment: (1) conservative—no interference, or only a minimum of it, in the form of rupture of the membranes or using a vaginal pack; and (2) radical—Caesarean section. It was in the cases treated by intermediate methods that the high mortality occurred. In 179 cases treated by pack *plus* version, bags, bipolar and internal version there was a maternal mortality just under 13 per cent. and a foetal mortality of 81 per cent. In 61 cases where there was no interference, or only rupture of the membranes, forceps delivery, vaginal pack, and vaginal pack followed by forceps, there was only one maternal death, and that was due to eclampsia, not to placenta praevia. The foetal mortality in this group of cases was 41 per cent., but it was admitted that these were for the most part of slight severity. In 14 cases—all severe—treated by Caesarean section there was one maternal and one foetal death, a mortality of 7.1 per cent. Professor Watson and Dr. Miller suggested that the problem thus became a question whether in the intermediate cases it was possible to allot to a certain number the more conservative forms of treatment and to a certain number the more radical methods, leaving some in which, when an attempt at conservatism had failed, the intermediate methods would have to be adopted. The value of Caesarean section in the more severe type of case was strongly emphasized; in the case of an early primigravida with a central placenta praevia abdominal delivery offered practically the only hope of obtaining a living child, and entailed less risk to the mother than any other form of treatment. Without laying down definite indications and contraindications, it was urged that the scope of the operation might legitimately be increased, and that its wider adoption would tend to diminish the present high maternal and foetal mortality figures. The importance of early diagnosis, institutional treatment, and the danger of palliation were strongly emphasized.

Professor R. G. McKERRON (Aberdeen) stated that the method required in any particular case could only be determined by existing conditions, and especially by the state of the cervix. In his personal experience of 250 cases, bipolar version was the usual method, though he had used de Ribes's bag in a few cases; he had never employed Caesarean section for the condition. His maternal mortality was 9, and of these 4 were moribund before treatment could be begun; in his opinion the mother was the primary consideration. As regards Caesarean section, he admitted that there were a few rare cases of placenta praevia which warranted such treatment, but it was not to be thought that Caesarean section would save all the children, since statistics showed a 30 per cent. mortality among the children and 11.5 per cent. among the mothers. Statistics were made to favour Caesarean section, but it had to be remembered that the operation was performed chiefly in favourable cases, whereas packing and version had to be used necessarily in the bad and almost moribund cases. The best chance of success depended on early diagnosis and immediate treatment. He thought it also of the utmost importance that all cases of placenta praevia should be removed at once to a hospital or home for treatment.

Professor MUNRO KERR (Glasgow) gave statistics of 476 cases of placenta praevia treated at the Glasgow Royal Maternity Hospital by ordinary methods. His figures agreed very closely with the Edinburgh Maternity Hospital figures, and showed: (1) that the maternal and foetal mortalities were influenced by the situation of the placenta, the condition of the patient, and the duration of gestation; (2) that both mortalities were low when little interference was required; (3) that packing alone gave better results than packing followed by version or forceps; and (4) that Caesarean section was better for both the mother and the child. All cases could not, however, be treated by Caesarean section, and thus the other methods had to be considered. He recommended external version followed by the pulling down of a leg in place of bipolar or internal version, as by this means there was much less interference with the placenta and the foetal circulation was not impaired. Labour must not be hastened, but allowed to proceed naturally. In his opinion early treatment was of the utmost importance, but he thought that delay was often due to uncertainty of diagnosis; this could always be made even with a closed os by inserting a medium-sized dilator through the internal os; on its withdrawal a flow of red blood would clinch the diagnosis. He therefore came to the following conclusions: (1) Caesarean section was only applicable in a hospital or a nursing home; (2) plugging should be limited as far as possible; (3) external version should be employed, followed by the extraction of a leg and an unhastened delivery; and (4) early diagnosis was essential, followed by removal to a hospital or nursing home.

Professor LOUISE McILROY (London) gave her personal experience of 33 cases, of which 3 were Caesarean sections. She laid stress on the importance of the placental souffle in diagnosing the position of the placenta in some cases, and also pointed out that as a diagnostic agent the finger was better than the dilator advised by Professor Munro Kerr. As regards treatment, she considered that Caesarean section should be confined to cases occurring in elderly primiparae; in others it should not be performed unless the gestation was over the thirty-sixth week. In her experience foetal mortality was just as high in breech presentations as after version, and she thought the causes were impaction of the placenta by the breech and strangulation of the cord, sometimes due to its prolapse. She recommended packing, if the cervix would not admit two fingers, but tight packing was apt to cause lacerations of the vaginal wall, which opened the way for sepsis afterwards. Another cause of sepsis was laceration of the cervix due to a hastened delivery. She did not recommend treatment with de Ribes's bag, especially in extern practice, as the bag was difficult to sterilize thoroughly, it was liable to be ejected from the uterus, and if the doctor was not present this might cause fatal bleeding. She concluded by advising active treatment as soon as the condition was diagnosed.

Dr. HAIG FERGUSON disagreed emphatically with any form of temporizing in the treatment of placenta praevia. Treatment depended on the degree of dilatation of the cervix; the child's chances, though to be considered to some extent, if over the thirty-fifth week, should always be very secondary to those of the mother. If the case was recognized early then Caesarean section was the best treatment for a primipara in the interests of both mother and child. In his opinion external version and spontaneous delivery, after extraction of a foot, was the best treatment in a multipara. The statistics did not show whether any deaths after version had occurred after hastened delivery, but he thought this was very probable. Packing was to be avoided if possible, though in a case with a closed cervix in domestic practice it was the only possible form of treatment.

Dr. W. FORDYCE pointed out that the statistics drawn up by Professor Watson were liable to a large degree of error, when they were discussed as a demonstration of the results of the various methods of treatment, since the cases had been treated by numerous men, a large number of whom were residents at the hospital and perhaps in the early days of their residency. He thought that this should be taken into consideration, and more importance could therefore be attached to the personal cases of Professors McKerron and McIlroy. His own experience of Caesarean section in such cases was not large, but all cases had been successful; he had seen very serious results follow packing of the vagina. Rupture of a Caesarean section scar was such a rare occurrence that he thought that risk should not deter one from doing the operation when a mother's life was at stake.

Dr. JAMES YOUNG thought that there was an increased field for Caesarean section in the cases that came to hospital. He doubted whether the mortality given in the statistics of Professor Watson and Professor Munro Kerr would have been so high if Caesarean section had been done in all cases.

Dr. C. E. DOUGLAS (Cupar) gave his experience of 15 cases of placenta praevia in a general practice of forty years. He had always regarded the mother as the primary concern, and none had died. He thought that besides lacerations caused by tight packing, there was also the risk of shock, which had been pointed out by the Dublin school. It was only very rarely that a finger could not be inserted

through the os; this should be followed by version and extraction of a foot, the delivery then being allowed to go on unhastened.

Professor WATSON, in reply, said that they were all agreed that the right place for a case of placenta praevia was a hospital or home, but for some this was not possible; for these patients the best treatment was version and spontaneous delivery. By the more frequent use of Caesarean section the mortality would be lowered.

BONE AND JOINT DISEASES.

A CLINICAL meeting of the Medico-Chirurgical Society of Edinburgh was held on January 21st, the President, Sir DAVID WALLACE, in the chair.

Miss HERZFELD reported the case of an infant suffering from multiple gonococcal purulent arthritis. Ophthalmia neonatorum had developed thirty-six hours after birth, gonococci being seen in the stained film. Ten days later multiple arthritis commenced, involving the knee, ankle, elbow, metacarpo-phalangeal, and interphalangeal joints. Suppuration occurred in the elbow and knee joints, and gonococci were found in films of pus from these joints. In the course of treatment by lecithin, which was being given to stimulate leucocytosis, the infant was found to be sensitive to yolk of egg. Mr. J. M. GRAHAM showed a specimen of Charcot's disease of the hip-joint in a female aged 46; an *x*-ray photograph and a painting were also shown. The changes in the joint were partly atrophic and partly hypertrophic, the capsule being greatly thickened and expanded. The articular cartilage lining the acetabulum was partly destroyed and replaced by fibro-cartilage. The articular end of the femur was formed by an area corresponding to the base of the neck, and was imperfectly covered by fibro-cartilage which had spread over the exposed bone from the altered synovial membrane. A full description of the specimen was given. A point in the history was the rapid onset of arthritic changes. The first trophic symptom occurred less than two months before the size of the joint reached that of a child's head. Mr. DAVID LEES showed a patient, aged 12, suffering from juvenile tabes and meningomyelitis. The father was under treatment for tabes and the mother for latent syphilis. The child was admitted to hospital suffering from subacute osteomyelitis of the tibia. He was treated with neo-silver-salvarsan and bicreol, which resulted in marked improvement, both clinically and serologically. Mr. Lees also showed a boy, aged 13, suffering from juvenile tabes associated with systemic syphilis. This patient had been treated with neokharsivan, sulfarsenol, stabilarsan, potassium iodide, and mercury. Later he was treated with neo-silver-salvarsan and bicreol; considerable improvement was obtained, but it was not so marked as in the previous case.

Mr. Lees submitted a case for diagnosis.

A man, aged 53, had bilateral arthritis of the knee-joints; the clinical condition was suggestive of a double Charcot's joint. The history included gonorrhoea in 1904 and 1909, with multiple arthritis after the second attack; there was no history of syphilis. Gradual increase in the swelling of the knee-joints had taken place during the past four months, but without pain. The physical examination showed no signs of syphilis in the tissues; there were signs of old choroiditis and commencing optic atrophy in the right eye, but otherwise the nervous system was negative. The cerebro-spinal fluid and blood were negative to the Wassermann test; the gold test result was 001332210000. Pus was present in the urine, but no gonococci were found in the joint fluid or in the urethra. An *x*-ray examination of the joints showed osteo-arthritis with some destruction of cartilage.

Mr. Lees showed Colonel L. W. Harrison's cinematograph film illustrating the diagnosis and treatment of gonorrhoea in the male.

ARTERIO-VENOUS ANEURYSM IN THE THORAX.

AT a meeting of the Aberdeen Medico-Chirurgical Society on February 5th, the President, Dr. PETER HOWIE, in the chair, Professor THEODORE SHENNAN read a paper on arterio-venous aneurysm in the thorax.

Professor Shennan based his paper upon two cases in which he had performed necropsies and upon seventy-two other reported cases. After recalling the fact that William Hunter was the first to describe traumatic arterio-venous aneurysm, and that James Syme was the first to describe spontaneous arterio-venous aneurysm in a case from which the specimen is still preserved in the anatomical museum of Edinburgh University, he proceeded to describe his two cases. In the first, perforation had occurred just below the azygos vein, and in the second perforation had taken place into the right auricle just below the vena cava. The oedema, cyanosis, and distension of veins, limited to the upper part of the body, head, neck, and upper extremities, but descending lower on the back than on the front of the trunk, were then described, and the sharp contrast presented by the almost emaciated-looking lower part of the body was emphasized. In the first case a systolic bruit was heard over the situation of the aneurysm of the aorta, extending outwards from the aortic area. In the second, a well marked "bellows" murmur was heard in the aortic area. Death followed in the first case on the thirty-first day after the perforation occurred, and in the second about three weeks after the perforation. In both cases, at autopsy, well marked syphilitic aortitis was found, and in the second case the compression of the superior vena cava at its lower part had divided its lumen into two narrow channels. Considering the whole subject on the basis of these two cases and the others culled from the literature, Professor Shennan found that ten times as many males as females were affected, and chiefly between the ages of 40 and 60. A more or less definite history of syphilis was available in less than 40 per cent., but in only ten cases could syphilis be fairly reasonably excluded. The influence of a previous typhoid infection may have been important in three cases. In no case was any information given with regard to rheumatism. Seventeen cases were definitely alcoholic. A definite exciting cause of increased blood pressure was apparent in less than half the cases. In others the perforation occurred during the night, and in a considerable number the absence of strain was noted. As a rule the onset of the swelling and cyanosis was stated to be sudden; but in at least six cases swelling had existed for some time before more severe symptoms developed; this may have been the case in others. There was no pain at any time in eight cases. All, with three exceptions, suffered from severe dyspnoea going on to orthopnoea. Perforations were found in the termination of the left innominate vein, at all parts of the superior vena cava, and in the upper part of the right auricle; the murmurs were continuous, or double or single systolic in cases in which perforation had occurred at any of these situations. In five cases there was no murmur at all. It was shown that the swelling depended more on the extent and degree of compression of the vena cava by the aneurysm than on the position of the perforation, though in some cases this was an important factor. No fewer than nine of the patients survived for a period of over two months, the duration varying from eleven weeks to twenty months, in five cases the duration being five months or over; in one case only was there apparent recovery. The differental diagnosis from closure of the superior vena cava resulting from compression and thrombosis was not always easy, and sometimes seemed to be almost impossible. The severe oedema and cyanosis sharply limited to the upper half of the body anteriorly seemed to be more or less characteristic of varicose aneurysm, whereas in closure from compresson and thrombosis such alterations might not be so extreme and did not develop so quickly because there was more opportunity for development of a collateral circulation; the swelling in a few cases of compression had, however, been as great as in the case of perforation. Moreover, the suddenness of development of the swelling was not absolutely pathognomonic because, occasionally, rapid thrombosis of the compressed superior vena cava, as in dissecting aneurysm, might produce very similar signs. On the other hand, in Lichtheim's case of varicose aneurysm, referred to by Kieseritzky, the cyanosis and swelling developed slowly. The course of the illness was just as little diagnostic, since it might last only a few hours or many months. The venous pulsation in the neck was probably the best indication of a varicose aneurysm; but it was much more often absent than present, no doubt because of compression of the vein. The continuous blowing murmur which was so often described, though an important sign, as Professor Shennan had shown, occurred in less

than 50 per cent. of the cases; moreover, in a case reported by Dujardin-Beaumetz, in which there was almost complete closure of the superior vena cava resulting from compression of an aneurysm of the aorta, there was a continuous murmur. This, however, was not an important objection, because, as Professor Shennan pointed out, other cases in which a similar pathological change was present showed a somewhat different murmur. The diagnosis must be based upon a combination of physical signs, seeing that even the absence of a murmur might not weigh greatly in the scale against the diagnosis of a varicose aneurysm.

Mr. G. H. COLT mentioned the diagnostic relationship between this condition and dissecting aneurysm. He referred to the absence of laminated clot in the cases where the blood pressure must often be low, and in which von Recklinghausen's theory might be held to apply.

Mr. WILLIAM ANDERSON first referred to the work of Makins in traumatic arterio-venous fistulae, and mentioned particularly the delay of a few days in the appearance of symptoms after the injury. He then referred to the recent work of Holman, whose experiments seemed to show that the bruit and thrill in these cases was due to the vibration of the septum between the artery and vein, and could be made to disappear by simple closure of the vein proximal to the fistula, even though blood continued to pour through it towards the periphery. He also mentioned the increase in blood volume, the fall in blood pressure (systolic, and, more particularly and permanently, diastolic), the slowing of the pulse on compression of the artery, and the general effects on the whole organism of throwing out of use as much as a quarter or two-fifths of the total blood volume in these cases.

THE UTERUS AS A CENTRE OF TOXINS AND IRRITATIVE PRODUCTS.

AT the annual meeting of the North of England Obstetrical and Gynaecological Society, held at Manchester on January 16th, the retiring President, Professor A. DONALD, gave his valedictory address on the subject of the uterus as a centre of toxins and irritative products.

Professor Donald first discussed briefly the toxaemias of pregnancy and of the puerperium, with special reference to two conditions—namely, toxic liquor amnii and toxic lochia. He mentioned a case of acute urticaria which was undoubtedly due to changes in the liquor amnii, and also some cases of acute toxaemia commencing about the twelfth day of the puerperium, which were due to the accumulation of toxic lochia in a flabby uterus, the cavity of which was below the level of the cervix. He thought that there were cases in which these toxic elements, produced during abortion or confinement, might persist for a long time afterwards, and referred to a case of acute eczema which occurred some months after an abortion, and which resisted all treatment until the uterus was curetted; the eczema then rapidly and permanently vanished. He believed that in many cases the heart and the nervous system were functionally affected by these toxins, which might also play a part in causing rheumatic affections. Their origin was not only in the contents of the uterus, but sometimes in its substance. There were undoubted indications that fibroid tumours of the uterus were associated with a toxic condition in the patient; this was most noticeable when a fibroid was undergoing rapid diminution at the menopause. There seemed to be disintegration of the growth, and absorption of the products into the general system, attended by palpitation, profuse sweating, loss of flesh, and cachexia. The cases cited had occurred mostly in parous women, but he believed that they were sometimes seen in nulliparae and virgins. The effects of some irritative products seemed to be purely local. Sometimes the conditions seemed to result from bacterial invasion, and at other times to be due entirely to chemical irritation, but it was not always easy to distinguish between them. The so-called senile vaginitis, and especially senile endometritis and pyometra, seemed to be caused by bacterial invasion. Pruritus might be due to the same cause, but also occurred in single women, in which case it seemed to be due often to irritative elements in the menstrual discharge or to an irritating leucorrhoea. Another condition often due to irritation was dyspareunia. In the very severe cases there was probably a nervous or even a mental element, but in the more common type he believed that a uterine discharge which might be slight in amount kept up a condition of local irritability. His practice was to dilate and curette in these cases, and the results had been more satisfactory than after any other method of treatment. Finally, he thought that cervical erosion was in a great many cases the result of an irritating discharge from the uterine cavity. The general opinion seemed to be that it spread from below, and many seemed to think that it was most commonly caused by gonorrhoea, but Professor Donald believed that this cause was greatly exaggerated. This irritation might appear after a confinement, but it was not uncommon in virgins. The teaching was generally that it was purely cervical in origin, but there were good grounds for believing that it was caused by the discharge from the uterus. In all cases of cervical erosion, except where there were reasons to believe that it was the result of gonorrhoea, the cavity of the uterus should be curetted. It was not uncommon in these cases to remove by the curette large masses of glandular tissue. A condition which seemed to him to prove the irritative effect of the intrauterine discharge was the so-called erosion of the posterior lip in cases of retroversion. The erosion was not confined to the posterior lip, as could be recognized when the uterus was straightened by a vulsellum, but it was chiefly situated there because the intrauterine discharge, owing to the position of the uterus, was obliged to flow over the posterior lip of the cervix.

Pelvic Adenomyoma.

The PRESIDENT opened the discussion on Dr. Kenneth Bailey's paper, which was read at the last meeting of the society on December 19th, 1924, and reported in our issue of January 24th, 1925 (p. 165).

Mr. GOUGH thought that the cell implantation explained most satisfactorily many cases previously difficult to understand. He thought, however, there was still room for Cullen's mucosal theory and for the theory of development from Müllerian rests. He referred to a case recently seen by him in which a tumour over the left pubic spine became swollen and painful at each menstrual period, and at operation proved to be an adenomyoma of the round ligament. There was no evidence of any intrapelvic disease and no hernial sac, so this tumour could not be accounted for by the implantation theory.

Mrs. BARTON HALL doubted whether retrograde menstruation was a pathological process as Dr. Bailey had suggested, and was associated with other pathological changes, including an increase in the loss of surface epithelium; she asked why this actively invading epithelium did not embed itself in the wall of the vagina.

Professor FOTHERGILL raised the question whether menstrual back flow was an isolated occurrence or took place repeatedly in certain women.

Miss IVENS said that she had been able to excise localized uterine adenomyomata in one or two cases without removing the uterus.

Dr. D. DOUGAL thought that the evidence in favour of the Fallopian type of growth was not very convincing. The theory appeared to rest chiefly on the fact that the cells in these cases were ciliated, but the uterine cavity was also lined by ciliated epithelium and he could not understand why menstrual haemorrhage should be associated with the activity of tubal epithelium. Retrograde menstruation appeared to furnish the most reasonable explanation of how the implants reached the peritoneal cavity. Adenomyoma had been found in certain situations difficult to explain on this theory, but he thought that all of them could be so explained. He referred to the successful experiments in rabbits by Victor Jacobson which proved that endometrial transplants in the peritoneal cavity were capable of active growth in the new situation. Clinical observations also supported this. Sampson had referred to four cases where adenomyoma occurred in the abdominal scar after operation on the pelvic organs, and Lochrane had also reported a case. Accepting the endometrial origin of these tumours as proved, and retrograde menstruation as the process by

which the implants reached the peritoneal cavity, certain other problems remained for solution. Was retrograde menstruation a frequent occurrence? What conditions of the uterus predisposed to it? The association of fibroids with adenomyoma had been frequently noted. Dr. Dougal referred to the confusion with regard to the nomenclature of this condition, and did not think Dr. Bailey had improved matters by suggesting another name. He thought the terms "endometrioma" and "endometriomyoma" suggested by Blair Bell were the best so far.

Professor BLAIR BELL was unavoidably absent, and Dr. Hendry accordingly read his remarks. Professor Blair Bell had been present as a guest of the American Gynecological Society on the historic occasion when Sampson read the first communication in which he demonstrated the endometrial character of the elements which were found in the ovaries in the circumstances under consideration. When Professor Blair Bell returned home he discovered endometrium in the ovaries in a case of bilateral "tarry cysts," and this was the first case demonstrated and published in this country. He knew of no inherent reason why there should not be two types of ectopic gland-bearing tissue, one endometrial and the other of tubal origin, but only the endometriomata had any practical or clinical interest, for menstruation could not occur in connexion with tubal glandular tissue. He thought that Dr. Bailey might be in error in describing the line of epithelium which he had illustrated on the surface of one ovary as tubal; it resembled germinal epithelium. Professor Blair Bell held that in certain cases the "cellular spill and implantation theory" of Sampson could not apply. For instance, endometriomyoma of the round ligament in the inguinal canal—a case of which he had recently reported to the society—could not originate in this way. Such a tumour was congenital in nature, the primitive endometrial tissue having been displaced by the external muscular coat of the uterus in the process of development. He believed that endometriomata were both developmental and implantational in origin.

In Dr. LEITH MURRAY'S absence, Dr. Hendry read his remarks also. Dr. Leith Murray emphasized the need for keeping an open mind about the pathology, more particularly in view of the adhesions which occurred at certain sites, and the association in some cases of "adenomyoma" of the Fallopian tubes with the tubercle bacillus. He would like to know to what extent bilateral oöphorectomy influenced these ectopic growths when occurring in the rectovaginal space.

Dr. BAILEY, in his reply, referred to mistakes made in the past as to the nature of this condition and to the two views held with regard to the amount of epithelium lost from the endometrium during menstruation; he believed that a considerable quantity was cast off into the uterine cavity during menstruation. The vaginal wall was often invaded to a certain extent by small nodules of growth. He had never found any trace of bacterial infection in these growths, and cultures from the "chocolate" fluid blood were always sterile. He had never encountered a case exhibiting malignant change. He insisted that the invasion of the ovary by the growth resulted in the production of a cavity without any evidence of the formation of a cyst wall. He therefore thought that the term "tarry cyst" was wrong, and that "ovarian blood cavities" or "menstrual blood cavities of the ovary" should be substituted. The "site of rupture," he held, was merely the original site of implantation. He believed that the invading elements were deposited probably at every menstrual period in some women, but did not necessarily invade at every deposition. He also believed that retrograde menstruation was of regular occurrence and that it might be one of the main factors in the causation of dysmenorrhoea in young women.

Dr. DOUGAL showed a specimen of a very large "tarry cyst" of the ovary.

At operation on a married woman 30 years of age, who had never been pregnant, the tumours shown were removed. The larger tumour was seen to arise from the right ovary, being quite free from adhesions, except on the posterior aspect of the broad ligament, where it was firmly attached over a large area. On puncturing the cyst wall with a trocar, tarry or chocolate-coloured contents escaped. The cyst measured about ten inches in diameter, and had thin walls except where adherent to the broad ligament. Its inner surface had no definite epithelial lining, but appeared to be composed of a striated layer of fibrin-like material; outside this the wall was composed of compressed ovarian tissue. Further exploration of the pelvis showed another cyst occupying the position of the left ovary. It was adherent to the back of the uterus and left broad ligament, and was about the size of a Tangerine orange. It also contained a tarry fluid, and adenomyomatous tissue was found at the inner pole in the neighbourhood of the ovarian ligament.

The chief interest lay in the size of the larger tumour, the contents of which measured about two pints. It seemed extraordinary that such a quantity of blood should be poured out as the result of functional activity of implanted endometrial tissue. It might be suggested that the haemorrhage resulted from interference with the blood supply of the tumour, but there was no evidence of this. Tarry cysts varied much in size, but were rarely larger than a Tangerine orange. The largest one in Sampson's series of cases measured about five inches in diameter.

Professor W. E. FOTHERGILL showed a haematometra associated with absence of the vagina, double haematosalpinx, and ovarian blood cysts removed from a girl 11 years of age. When examined under an anaesthetic the vaginal orifice admitted only the tip of the little finger, and the urethra was a mere slit. Rectal examination showed a very large uterus. At the operation it was found that the vagina was only represented by a fibrous cord. Cases of haematometra associated with other developmental abnormalities were referred to by Mr. PHILLIPS, Dr. W. FLETCHER SHAW, Dr. R. A. HENDRY, and others.

Dr. J. W. BURNS read notes of a case of hydatidiform mole and chorion-epithelioma from the same patient.

The patient, 28 years of age, had had two children, the second four years ago, and was seen first on March 7th, 1924, complaining of swelling in the abdomen and bleeding. Her last menstrual period was on December 20th, 1923, and bleeding began on February 20th, 1924. Examination of the patient suggested the existence of a uterus pregnant about sixteen weeks with a cystic tumour on the left side. Under anaesthesia, on passing a finger high up into the cervix, the tumour on the left of the uterus disappeared and the swelling resembled a symmetrically enlarged uterus twenty to twenty-two weeks pregnant. The cervix was tightly packed with sterile gauze, and the patient returned to bed. Two days later a hydatidiform mole was delivered, weighing 20 ounces, and a few days later the patient was sent to a convalescent home. A month afterwards the patient was readmitted as the uterus was still enlarged and tender, the left appendage was enlarged, and there was a free pink vaginal discharge. A few days later, under anaesthesia, the uterus was explored and an attempt to clear the cavity of its contents with a blunt curette had to be abandoned. The abdomen was opened and the uterus, tubes, and ovaries removed. On cutting open the uterus a mass of chorion-epithelioma was seen in the fundus penetrating into the muscular wall, and the left ovary showed a theca-lutein cyst. Microscopic sections of the uterus showed the characteristic appearances of chorion-epithelioma. The points of interest were the behaviour of the uterus on dilating the cervix and the rapidity with which the chorion-epithelioma showed its presence.

Dr. D. DOUGAL referred to a case which had been under his care where chorion-epithelioma developed equally rapidly.

TUMOURS OF THE CENTRAL NERVOUS SYSTEM.

AT a meeting of the Bristol Medico-Chirurgical Society on February 11th, Mr. J. LACY FIRTH in the chair, Mr. PERCY SARGENT read a paper on the surgery of tumours of the central nervous system.

Mr. Sargent laid emphasis first on the necessity for accurate diagnosis and for close co-operation between the neurologist and the surgeon. Tumours of the pituitary region, he said, manifested themselves in two ways. Function was disturbed, with changes in the skeleton and in other glandular functions, hairlessness, etc.; pressure produced intolerable headaches, with failing vision. It was for the latter symptoms that surgical intervention was required. These tumours fell into two divisions. Simple adenomata of the pars anterior excavated the sella, and also pushed up the optic chiasma, but in invading the cranial cavity they remained encapsuled. With these types of tumour glandular disturbances might occur; and such patients bore operations badly. The second division was composed of suprapituitary tumours: (*a*) meningeal tumours of the interpeduncular space, (*b*) tumours or cysts of complex structure probably arising from the infundibulum; with these, the glandular changes were not remarked. Either type might be approached (1) by the temporal route, used by Horsley twenty years ago;

(2) from below, through the sphenoidal sinus as advocated by Cushing; (3) by means of a frontal osteoplastic flap, as devised by Frazier. Mr. Sargent preferred the last method. The prognosis was best with adenomata; with the improved technique the proportion of satisfactory results was quite gratifying. Suprapituitary tumours were less satisfactory. Some were cystic and contained cholesterine; with these there seemed to be a risk of death from toxaemia, following the liberation of the fluid. Cerebellopontine tumours were usually neuro-fibromata of the auditory nerve; others were cholesteatomata, or "pearl tumours." The former were usually firm, solid, encapsuled tumours, but might be soft or even cystic. They enlarged the internal auditory meatus, sometimes to a remarkable degree; this could be demonstrated by skiagraphy. Deafness and tinnitus might be the only symptoms for many years. Loss of function of the vestibular part of the nerve was early demonstrable, and loss of the corneal reflex of the same side was also frequent. Later, the classical signs of tumour—headache, vomiting, papilloedema—appeared. By this time an operation had become a more difficult as well as a more hazardous proceeding. The tumours should not be removed *en masse*; this could be done, but the resulting disturbance to the vascular supply of the medulla commonly induced death. The tumour should be removed intracapsularly, by morcellement. Decompression might be performed if piecemeal removal was not thought advisable, but the results were not nearly so satisfactory. The group of endotheliomata was histological rather than regional, though the tumours were meningeal and tended to be superficial. They cupped but did not infiltrate the brain, and probably arose from the arachnoid tufts which formed the Pacchionian bodies, and so tended to be found about the longitudinal sinus. Growing very slowly, they might attain very large size before giving rise to symptoms. These tumours might often be diagnosed and localized with certainty before signs of general pressure appeared: this was a great advantage, as an osteoplastic flap could be employed. A two-stage operation was not advised; the patient might die between the two operations. These tumours formed only a small proportion of the whole class of tumours of the cerebrum, and were rare in the cerebellum. A glioma of an infiltrating type was the common tumour. For these, decompression and partial removal gave some relief; and it seemed that gliomata were favourable tumours for the action of radium buried in their substance. In any case, where there was a high degree of intracranial pressure any operation was fraught with difficulty and danger; the classical signs of tumour should be regarded rather as danger signals, or even portents of impending death. Early and accurate diagnosis were the points of essential importance. Spinal tumours provided some of the best examples of the benefits derived from operation on the central nervous system. A large proportion were benign extramedullary growths, and in all these there was some stage where operation afforded prospect of complete removal at very small risk. In addition to neurological means of diagnosis and lumbar puncture, skiagraphy after the injection of lipiodol through the occipito-atlantoid ligament afforded a valuable means of localizing the tumour.

CONGENITAL CYSTIC KIDNEY.

A MEETING of the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland was held on January 30th, with the President, Dr. C. M. WEST, in the chair.

The PRESIDENT showed a case of congenital cystic kidney accompanied by various other abnormalities in a seven months foetus which he had received from the Rotunda Hospital. There was a large cystic kidney on the right and a commencing similar condition on the left side. The ureters were greatly distended and the bladder was much dilated and hypertrophied; this, however, was not due to any obstruction to the outflow of urine, but was apparently of a similar nature to cases of congenital hypertrophic stenosis of the pylorus. The vas deferens of each side opened independently into the lower part of the hypertrophied bladder, and there was no sign of any seminal vesicles. There was a Meckel's diverticulum, and the left foot was clubbed. Dr. West showed the various abnormalities by means of lantern slides and the actual specimen, and discussed the causation of the conditions found.

Professor A. F. DIXON suggested that in this case the caudal part of the large bladder really represented a much dilated first part of the urethra, and that the reason that the seminal vesicles were not present might be due to the fact that the part of the Wolffian duct from which they normally arise had been taken up and incorporated into the much dilated cavity of the bladder.

Nutrient Foramina of Bone.

Professor E. J. EVATT read a preliminary note on the nutrient foramina of the longer bones of the extremities. He showed by specimens and drawings of them that as soon as the articular epiphyses were demarcated the bones were practically models of the adult bones. Each of these longer bones began with two nutrient foramina—one above and the other below the middle of the shaft; the upper foramen was directed distally, and the lower towards the proximal end of the bone. The spatial relationships of the foramina to each other and to the ends of the bone were retained throughout life. The final direction of the surviving foramen or foramina was determined by the constant or changing direction of the arteries to the bones, and not by an inequality in the growth of the bones themselves. Many of the bones retained the two foramina throughout life. He believed that the epiphyses did not add to the length of the bones, and that the growth of the bones was in no sense local but general.

Professor A. F. DIXON did not agree with Professor Evatt's conclusion regarding the growth of bone. It was contrary to the results obtained by madder feeding and other experimental work.

A series of casts and photographs, showing the development of the external nose in the orang, the chimpanzee, and the gorilla, was shown by Professor DIXON. The chief peculiarities of the nose in these animals were explained, and the condition in each contrasted with the external nose of man.

AT a meeting of the West London Medico-Chirurgical Society, at the West London Hospital on February 6th, Dr. BERNARD MYERS reviewed the subject of the nutritional disturbances of infancy, dealing with those nutritional states occurring in infancy in which, so far, no pathological or bacteriological lesions of any primary consequence had been found. To comprehend nutritional disturbances it was necessary to appreciate fully the importance of food. Human milk must be considered the ideal food, containing not only proteins, carbohydrates, fats, salts, and water, but also the ferments and vitamins which must be kept in view. Further, it was necessary to remember the relative percentages of the salts, and the fact that human milk contained more potassium and iron than cow's milk, while the latter showed a large percentage of calcium and phosphates. The great importance of correct feeding with pure milk of definite composition was considered; also the difficulty of fat digestion, the necessity of caution in maintaining the carbohydrate percentage, the danger of too strong whey salts, and of too high percentage of sugar. The importance of breast-feeding was strongly emphasized. The discussion was opened by Dr. HUGH THURSFIELD and Dr. ERIC PRITCHARD.

AT a meeting of the Hull Medical Society on February 6th, the President, Dr. T. RITCHIE RODGER, in the chair, Dr. F. C. EVE read a paper entitled "Diabetic treatment simplified." In this he expressed the view that modern methods involving food value estimated in calories and the blood sugar tests were too complicated to apply in private practice. Hence, in diabetes, it was far better to regulate diet and the use of insulin consistently by urine testing rather than to attempt the impossible by blood testing, which could not be done often enough. The only means whereby the doctor could see at a glance what happened in his absence was for the patient to chart a curve of his sugar excretion every day. Dr. Eve had devised and used a simple fermentation method by means of which any adult could do this satisfactorily. Calorie estimation and blood sugar tests were rarely needed. If the ferric chloride test became positive for ketones, then bread and insulin must be added. Dr. W. W. ADAMSON dissented from the view that the treatment of diabetes could be adequately controlled by the estimation of urinary sugar, which might give a false impression of the percentage of sugar in the blood. Hyperglycaemia might be present without glycosuria.

Reviews.

INTERNAL SECRETIONS.

THE third edition of Professor SWALE VINCENT'S book on *Internal Secretion and the Ductless Glands*[1] brings the knowledge of these glands up to date and affords the reader a select bibliography, guided by which he can, if he so wish, compile a complete one in any particular branch of the subject which interests him. The book is a valuable corrective to the wilder statements made frequently in some of our contemporaries and the absurd claims of the nostrum-mongers who sell to, and through, the profession every imaginable kind or combination of tissue extracts. There are drug makers just as clever in passing off their wares to medical men by speciously scientific advertisements as are the patent medicine vendors in gulling the public by more blatant advertisement in the daily press.

In the section on the reproductive organs we note that the latest publications of Voronoff and Steinach are critically considered. The first case of Voronoff was a man from whom both testes had been removed for tuberculosis, who resembled a eunuch, was hairless and fat, and had large mammae. A testis was grafted in four pieces. The graft only survived three months and then suppurated. During this period the beard grew and the man had to shave, which he had not done for twenty years. One man of 74, with marked signs of senility, was transformed into a vigorous, energetic person, but in some other cases the results were not so definite. Time and more cases are required to form a true judgement on the value of monkey gland grafts. Steinach's method of tying the vasa deferentia causes increase of the interstitial tissue of the testes and signs of rejuvenation, but it is not yet known how long the beneficial effects last. The wisdom of sterilizing criminals by this means, now legalized in certain States of America, is doubtful if, as is alleged, increased sexual proclivity results. It is, the author states, as yet undetermined how far the germ cells of the seminiferous tubules share in the internal secretion which has been attributed to the interstitial tissue. A very interesting account is given of feminizing and masculinizing experiments which have been carried out by castration and grafting. Not only changes in physical form, but in erotism, are said to result. Hermaphroditism and psychical homosexuality are considered in view of these animal experiments.

In dealing with the thyroid, the author describes certain recent success in abolishing goitre by giving children small doses of iodine. In an ordinary diet iodine is obtained from sea-fish and from milk, eggs, cereals, vegetables, and wine; soil blown upon by sea spray is an important source. It should be pointed out that white flour and bread are robbed by the miller of iodine, along with valuable salts and vitamin B. Prohibitionists should learn that while wine may add essential salts, sweets and white flour pastry rob the diet of these, and also of vitamin B, required for proper digestion and utilization.

Dr. R. PORAK, a professor at the Shanghai School of Medicine, has written a book on the functions of the endocrine glands, entitled *Les Syndromes Endocriniens*,[2] which forms one of a series of French monographs published under the direction of Professor ROGER. Authors of books on endocrinology set about their task in different ways, but for the most part adopt the classification of diseases due to increased or diminished function of the glands of internal secretion. Dr. Porak treats of the subject from rather a different point of view, and readers will be disappointed who expect to find here a neatly arranged table indicating the effect of hypo- or hyperfunction of endocrine glands, and who seek for an exact formula to balance a glandular defect and to cure a patient with certainty. Sufficient evidence has not yet been accumulated to warrant such a simple classification; many of the generally accepted symptoms of endocrine deficiency require a critical review. In particular, Dr. Porak is not satisfied with evidence usually presented in favour of hyperfunction of internally secreting glands; he insists on a more accurate study of certain nervous syndromes wrongly attributed to derangement of internal secretion. Such are the special characters of the book, wherein are described successively the relations of internal secretions to the development of the body, to sexual functions, to the cardio-vascular system, to diseases of the excretory organs and skin, and to disturbances of nutrition. He gives reasons for his decision to include diabetes within the scope of the book, and has a special chapter on the relation of the pathology of the blood to symptoms and signs of endocrine upset. The functions of the thyroid, parathyroid, and suprarenals are dealt with in sequence. One feature of the book is the frank and open discussion of the fundamental doctrines of this rapidly growing branch of medicine. It will serve a good purpose if it destroys confidence in the blunderbuss preparations advocated by some organotherapy enthusiasts and directs attention to the necessity for more careful thought about the influence which one secretion exerts on the others. It is a useful and stimulating addition to endocrine literature.

[1] *Internal Secretion and the Ductless Glands.* By Swale Vincent, M.D., F.R.S., etc. Third edition. London: Edward Arnold. 1924. (Demy 8vo, pp. xv + 463; 110 figures. 25s. net.)

[2] *Les Syndromes Endocriniens.* Par le Dr. R. Porak. Préface du Prof. H. Roger. Bibliothèque des Grands Syndromes. Paris: G. Doin. 1924. (Med. 8vo, pp. vi + 401; 19 figures, 4 plates. Fr. 28.)

THE PROBLEMS OF TUBERCULOSIS.

DR. AUBERTIN, in his book on the development of bacillary infection in man,[3] deals only with what the French call "*bacillose*," or infection with the tubercle bacillus of Koch. He discusses in great detail every known aspect of the process by which it gains access to, primarily infects, and becomes latent or active in the human body. The book is not so much a record of the young author's own experiments and observations, as a careful examination and critical analysis of the published work and theories of others. It consists of four parts. In the first an account is given of the views of French observers regarding the development of tuberculous infection in man; in the second these are examined critically; and in the third and fourth an effort is made to demonstrate the factors of the conditions favourable to tuberculosis. The first two parts of the book will leave the reader in a maze of doubt, for the author's critical examination of the conceptions and observations of the best known writers on tubercle infection brings out a mass of contradictory evidence. While one holds that infection only occurs through the intestinal tract, another will argue that it can only occur through the lungs; and so on with a number of other problems, such as the questions of the age at which primary infection takes place; of acquired immunity; of the freedom or otherwise of native races from tuberculosis; of the site of original infection as observed clinically, in autopsies or experimentally; of the relation between human and animal tuberculosis; of secondary infection and the influence of intensity of infection; and other important questions. In the final sections of the book, however, he sums up what he considers may be regarded as more or less established facts; and states that of all the theories at present held regarding the conditions under which tubercle infection attacks mankind, only one is definitely accepted by all—namely, that tubercle is a contagious disease caused principally by expectorated matter containing tubercle bacilli. He arrives at three conclusions regarding liability to infection. The first is that there is no specific immunity, and the theory that tubercle bacilli, which are universally latent in almost everyone, cause immunity spontaneously, has not the importance sometimes ascribed to it. Secondly, that though there is no specific immunity, the various biological defences the human body possesses, notably the leucocytes, vary with the individual. On the other hand, independently of the influence of predisposition, tubercle infection (given equal doses of the bacilli) will develop more readily the nearer the subject approaches the antecedent conditions favourable to infection. These seem foregone conclusions. His third conclusion is that the tubercle bacillus specially selects certain

[3] *Le Développement de l'Infection Bacillaire chez l'Homme: Le Rôle du Terrain.* Par Dr. E. Aubertin. Préface du Pr. Agrégé Leuret. Paris: Gaston Doin. 1924. (Roy. 8vo, pp. 339. Fr. 20.)

tissues and organs for its development. It does not attack non-vascular tissues and those only slightly vascularized, but has a special affinity for highly vascular organs and tissues, and for young persons in the full activity of their bodily functions. The final pages of the book contain remarks on prophylaxis. Although unhealthy environment, poverty, and vice must be combated, the removal of these conditions will not be efficacious unless at the same time efforts are made to detect persons who are expectorating sputa containing tubercle bacilli. Dr. Aubertin recognizes the practical difficulties in carrying out these measures effectively, and urges the need in France of Government action; he quotes a statement of M. Poincaré in 1924 to the effect that the campaign against tuberculosis will be amongst the most urgent matters occupying the attention of the French Parliament in the future. Dr. Aubertin's book as a whole is an able and full critical exposition of our knowledge of tuberculous infection.

A TEXTBOOK OF PHYSIOLOGY.

Fundamentals of Human Physiology is a book of moderate size, and its scope is precisely what the title indicates, Professor J. J. R. MACLEOD and Dr. PEARCE having kept to their text with commendable strictness. It is always interesting to see what masters in their subject consider "fundamentals"; and in the book before us we have the Institutes of Medicine—as the old term for physiology was—expounded by two experienced teachers in Canadian medical schools.

We do not wonder that the book is already in its third edition,[4] for the style is so easy that the reader does not at first appreciate how much quite recent physiology is compressed into the volume. The authors begin with short accounts of the physics and chemistry requisite to an understanding of physiology to-day; in fact, we cannot remember previously to have seen the vast subject of the proteins summarized in one and a half pages.

A refreshing sanity pervades the whole treatment of the bodily functions, and much useful information is given, notably in the remarks on hygiene with which the volume closes. We are relieved to find that such eminent physiologists as the authors do not scorn to use the expression "lower the vitality" when discussing the subject of draughts predisposing to "catching cold." They also condescend to criticize the too high seat in the w.c., against which there was a sort of crusade in this country a few years ago. In 99 per cent. of cases it is too high and is level instead of sloping backward to allow the thighs to exert on the abdominal wall the powerful supporting pressure which Nature intended. The way in which the innervation of the circulation and of the respiration is dealt with is interesting, as is indeed all that is said about the nervous system; "psychic reflexes" are not explained away as though the psychic element was not a causal one. We should have welcomed a chapter on posture and animal mechanics, and surely we might have had more than so casual a reference to insulin; is not this carrying modesty too far?

The seventy-one illustrations are well chosen; the coloured diagram of the tubules and blood vessels of the kidney is very valuable for teaching purposes.

CATENARY PATHOLOGY.

THE expression "catenary" as applied to pathology suggests itself as an appropriate interpretation of what Dr. RICKER, of the Municipal Pathological Laboratory of Magdeburg, intends to postulate by the term "Relationspathologie" in his *Pathologie als Naturwissenschaft*,[5] a book which he has written for the edification of pathologists, physiologists, doctors, and biologists. It is an exhaustive exposition of his theory that pathological and physiological processes are one and the same, that they depend on a chain of linked physical action within the body, set going by internal or external stimulation of the nervous system, and that both physiology and pathology are natural or physical sciences. Dr. Ricker considers that they should be taught as physical sciences without reference to hygiene or medicine. On this foundation the author constructs his theory of catenary pathology. Disease in all its forms commences with a stimulation of the nervous system, which directs by vasomotor action the circulatory system and blood stream, while it, in its turn, acts on the organs and tissues, influencing metabolism and other functions of the body. There is thus a chain of processes, beginning with the nervous system and ending with the organs and tissues. If the results are healthy or normal, the chain of processes is physiological; if unhealthy or abnormal, pathological. Inflammation, tumours of all kinds, macroscopic and microscopic anatomical changes, are all produced by the initial action of the nervous system on the circulatory system, causing dilatation or constriction of the blood vessels, and so effecting a slowing or arrest of the blood stream, with subsequent massing of leucocytes, exudation and interference with normal metabolism. If these views are accepted by pathologists, Virchow's time-honoured cellular pathology vanishes in the light of *Relationspathologie*, as alchemy in the light of chemistry, and astrology in that of astronomy. In fact, throughout the volume Dr. Ricker writes contentiously, and attacks not only Virchow's theories but many others. He does not accept, for example, the usual explanations of chemotaxis and phagocytosis; and infective (bacterial) pneumonia he does not consider a struggle against bacterial invasion. He seeks to prove in argument and by experiment that the cell has not and cannot have an independent existence. The cellular theory, by which individual cells can be stimulated directly for self-maintenance and multiplication, ignores the relation between the blood stream and the nervous system. All cell and tissue changes stand in causal relation to the blood, the circulation, and the nervous system, and the chain of processes, of which the nervous is the earliest in point of time, is carried in different directions and produces macroscopic and microscopic anatomical changes according to the nature of the cells or tissues concerned. It is too soon to determine how far this view of pathology will be accepted or not; but among his own countrymen Dr. Ricker has many active opponents, one of whom remarks that his description of Virchow's cellular pathology is a caricature (*Zerrbild*).

His work, however, is suggestive in many respects, though it is difficult at times to follow him on account of the involved thought in many of his sentences. He divides his subject into three parts—a physiological, a pathological, and a philosophical criticism—in which the conceptions of life, cells, inflammation, degeneration, tumour formations and so on, and the principles of a catenary physiology and pathology are tested logically. His pathology does not concern itself with mental processes or mental disease. He regards these as belonging to mental and moral sciences or metaphysics. Pathology and physiology, being only concerned with physical processes, have nothing to do with the psychical. Psychology, however, is regarded as a science which links up the physical with the psychical. It commences where the physical leaves off. On the other side are the practical sciences of hygiene and medicine—the one for the maintenance of normal physiological processes, the other for the restoration of the abnormal pathological to the normal. Dr. Ricker would be more convincing if he did not protest so much, repeat his theory so often, or involve his arguments so obscurely at times in long and parenthetical sentences. His book is scarcely one that will be read with ease. It has a good index and a bibliography of sixty-three articles or books written by himself or his collaborators.

BASAL METABOLISM.

WE recommend the new book by Dr. EUGENE DU BOIS, *Basal Metabolism in Health and Disease*,[6] to the attention of physicians as well as physiologists. For many years the experiments on calorimetry which physiologists conducted

[4] *Fundamentals of Human Physiology.* By R. G. Pearce, B.A., M.D., and J. J. R. Macleod, M.B., D.Sc., F.R.S., assisted in the third edition by Dr. Norman B. Taylor. Third edition. London: H. Kimpton. 1924. (Med. 8vo, pp. 349; 71 figures, 8 coloured plates. 18s. net.)

[5] *Pathologie als Naturwissenschaft—Relationspathologie.* By Gustav Ricker. Berlin: Julius Springer. 1924. (Sup. roy. 8vo, pp. vii + 391. Paper cover, gold marks 18; bound, gold marks 19.80.)

[6] *Basal Metabolism in Health and Disease.* By Eugene F. Du Bois, M.D. Philadelphia and New York: Lea and Febiger. 1924. (Med. 8vo, pp. viii + 372; 78 figures. 4.75 dollars.)

and the new knowledge of the general metabolism of the body which was gained did not reach most medical practitioners, since it was published chiefly in physiological journals. Calorimetry experiments laid the foundation of the science of nutrition, yet, long after calories were understood and talked about, the cumbersome and expensive apparatus by which these were estimated was installed only in the best equipped physiological laboratories, and few people would have predicted that such appliances would soon assume a form which could be carried to the bedside. In recent years it has been shown that estimations of metabolism by indirect calorimetry are of great value in the diagnosis and proper control of such diseases as exophthalmic goitre, diabetes, and the anaemias. Fortunately the ingenuity of physiologists in devising simpler apparatus has kept pace with the increasing usefulness of basal metabolism tests, so that it is easy now for these tests to be carried out by the practising physician without any special training in technicalities. In this adaptation of physiological research to practical medicine Dr. Eugene Du Bois has played a prominent part, and it is fitting that he should have taken up the task in such a book as this of translating the whole subject of basal metabolism out of the realm of pure physiology into the domain of clinical medicine. He has succeeded in explaining the subject very clearly, and has written a book which should be very useful to physicians, advanced medical students, physiologists, and dietitians.

The first part of the book deals with metabolism in health. The earlier chapters describe the nutritional requirements of the body and the general principles of metabolism. Later the author turns to the different forms of respiration apparatus and the methods used in calculation. In the second part of the book, devoted to metabolism in disease, he discusses the value of basal metabolism tests in diabetes, diseases of the thyroid, adrenal, pituitary and sex glands, in diseases of the blood, heart, and kidneys, and in fever. But in this portion of the book, as in the earlier part, he does not confine himself simply to the value of tests for estimating the basal metabolic rate; he covers much more ground than this, surveying the whole physiological exchanges of the body in health and disease.

We believe that this book will prove very useful to those who are looking for a comprehensive and trustworthy account of the subject with which it deals.

A CANADIAN LOYALIST.

IN the year 1647 two brothers named Reyerzoon emigrated from Holland to America, and settled in New York, then New Amsterdam. The name eventually became Ryerse and afterwards Reyerson. In his autobiography, *Looking Backward*,[7] Major-General G. S. RYERSON of the Canadian Medical Service tells us how he is the direct descendant of one of the two brothers, and how his grandfather, with others of the family, remained loyal to the British during the American Revolution, and, after having their property confiscated, emigrated into what was then the wilds of Canada. His grandfather became a loyalist soldier at a very early age, and performed gallant service during the Revolution. His father, who was born in 1791, and was one of six brothers, also became a soldier, and fought and was severely wounded in the campaign of 1812-14 against the United States. Eventually he and four of the brothers took to the ministry, one, the Rev. Dr. Egerton Ryerson, attaining eminence in the Methodist Church. These details of his ancestry are related in the early chapters of the autobiography, and are followed by chapters of General Ryerson's own early life, education in Edinburgh, Paris, and Vienna, and his professional career as professor of eye, ear, and throat diseases in the Trinity Medical College and University of Toronto. At the time of the Fenian raid of 1870 he held a temporary commission as ensign in a regiment of foot, but saw no active service. He took part, however, as a regimental medical officer in the campaign of 1885 against Louis Riel and the Indian rebels of the North-west. At that time he had organized a bearer section, and he gives a graphic and interesting account of his journey with it to the area of operations and his subsequent experience, during the fighting at Fish Creek and Batoche. A chapter is devoted to his venture in politics, when he stood three times as a Conservative candidate for a Toronto constituency and was elected a member of the Legislature on two of these occasions. The remainder of the book is taken up with the author's activities in the Canadian Militia Medical Service, the Canadian branches of the St. John Ambulance Association and British Red Cross Society, with his work as Canadian Red Cross Commissioner during the South African war, and with accounts of visits paid to England, Spain, Budapest, Japan, and Hong-Kong, and to France during the great war. Everyone will sympathize with him in the tragic family bereavements from which he suffered in 1915. There are several inaccuracies throughout the book as to names, places, and dates, some probably due to inadequate proof-reading. The Geneva Convention, for example, is dated 1865, and the International Conference of Red Cross Societies is said to have been held in London in 1912; in that year it was held in Washington. It is also disconcerting to find a medical writer to-day referring to anti-enteric vaccine as a serum, to a bottled aerated water as containing a considerable percentage of radium emanation, and to the eating of raw fish as a cause of beri-beri. But, notwithstanding these defects, the autobiography will be appreciated on account of the picture it presents of the author's patriotism, loyalty, and faith in the British Empire.

[7] *Looking Backward.* By George Sterling Ryerson, M.D., C.M., L.R.C.P. and S.Edin., F.A.C.S., F.S.A.Lond., Major-General, R.M.O. Canadian Army Medical Service. Toronto: The Ryerson Press. 1924. (Extra post 8vo, pp. 264; 11 plates. 2.50 dollars.)

NOTES ON BOOKS.

THE new number of *Brain* (vol. xlvii, Part 4) contains an article by Dr. E. D. Adrian, F.R.S., of Cambridge, on inhibition, a clinical and pathological study by Dr. James Collier and Dr. J. G. Greenfield of London on the encephalitis periaxialis of Schilder, and another article on encephalitis periaxialis diffusa by Professor Bouman of Amsterdam. The issue also contains notices of recent publications and an index to the volume. The periodical is published in London by Macmillan and Co., and in New York by the Macmillan Company. The yearly subscription in this country is 24s., to be sent to Messrs. Macmillan, St. Martin's Street, London, W.C.2.

Dr. ARTHUR SHEARD'S little book on *Pernicious Anaemia and Aplastic Anaemia*[8] is a thesis submitted by him to the University of Leeds in December, 1923, for which he was awarded the degree of M.D. with distinction. It is a review of fifteen cases of pernicious anaemia which were carefully studied, together with a case of haemolytic jaundice simulating pernicious anaemia in certain respects, and one of aplastic anaemia. Of these patients four died in the Leeds General Infirmary and *post-mortem* examinations were made. The remainder were kept under observation as long as possible and after discharge from hospital often visited in their homes. The study of this relatively small number of cases has been supplemented by a review of all the cases of pernicious anaemia admitted to the Leeds General Infirmary during the past ten years, particular attention being paid to age and sex incidence, family history, and occupation. The book is divided into two sections, the first of which deals with pernicious anaemia and the second with aplastic anaemia. It is a careful piece of work, and, though it has not opened up any new outlook on the pathology or treatment of these puzzling diseases, the detailed information it contains will be of interest to all who are making a special study of blood diseases.

The 1925 edition of *The South American Handbook*[9] contains a considerable amount of information about the countries and resorts of Latin America, including South and Central America, Mexico, and Cuba. Local descriptions of the districts and towns are combined with the details of railway routes and a guide to hotels. Besides being of service to travellers, the book should be of use to investors and others interested in South America.

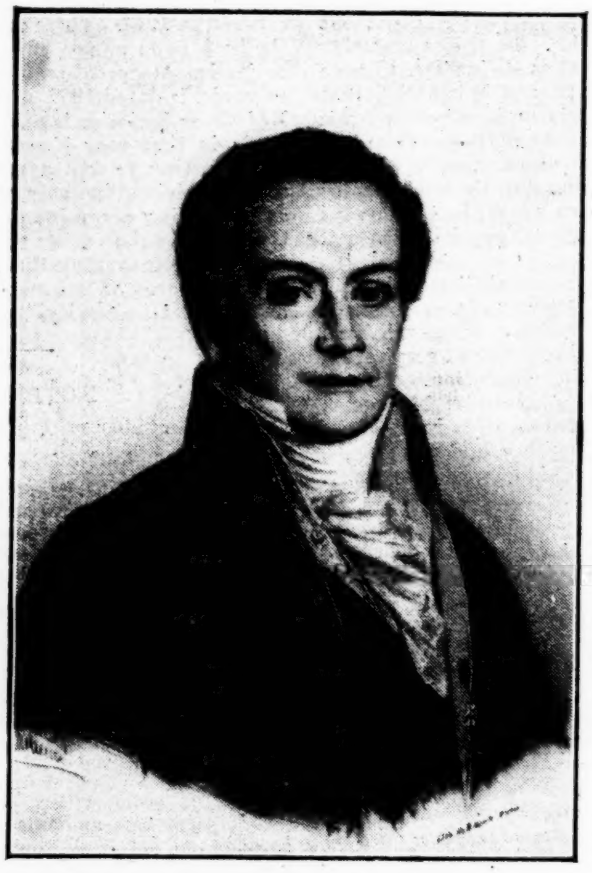
[8] *A Contribution to the Study of Pernicious Anaemia and Aplastic Anaemia.* By Arthur Sheard, M.D. Bristol: J. Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. 1924. (Roy. 8vo, pp. vii + 94; 2 plates. 7s. net.)

[9] *The South American Handbook, 1925.* London: South American Publications, Ltd. 1925. (4½ × 7¼, pp. lxvii + 628. 7s. 6d. net.)

Nova et Vetera.

ALIBERT.

ALIBERT is generally esteemed to be the founder of the French school of dermatology which has had so great an influence on the study of that department of medicine. It was under him that the ancient Hôpital St. Louis became essentially a hospital for diseases of the skin, and from his studies and teaching there sprang the long line of French clinicians and teachers who have always been foremost in every progressive movement associated with their specialty. It is hardly too much to say that the Hôpital St. Louis is the Mecca of the dermatological world; and physicians who make cutaneous diseases their peculiar study scarcely regard their education complete without a pilgrimage thither. It is therefore quite appropriate that Dr. Brodier, who is the curator of the hospital museum and no doubt enjoys special facilities for the purpose, should devote some of his energies to writing the biography of the first master.[1]



ALIBERT.
(From the collection of the Royal College of Physicians of London.)

Jean Louis Marc Alibert was was born on May 2nd, 1768, at Villefranche-de-Rouergue, where his parents occupied a position of some importance. He was originally intended for the Church, and served his novitiate in an order, the Pères de la Doctrine Chrétienne, who conducted an important school in his native town. In 1793, however, owing to the revolution, the fathers suffered dispersal and Alibert proceeded to Paris, where, after certain vicissitudes, he took up the study of medicine, and was received M.D. at the end of 1799. It may be confessed that his subsequent career shows little or no trace of early clerical training.

Alibert's life work began when he was appointed to the St. Louis Hospital in 1802. He found on his arrival at that institution an extraordinary collection of patients suffering from every kind of disease—a collection which only boasted a single feature in common, the fact that they were considered unsuitable for the wards of the Hôtel-Dieu, the institution from which they had been passed on. A very considerable number of these patients were the subjects of some cutaneous malady, and no doubt it was this circumstance which directed the young physician's attention to the study of diseases of the skin. With the wealth of material at his disposal it is not surprising that he was the first to describe several of the more striking forms of cutaneous disease—for example, mycosis fungoides and scarlatiniform erythema. He invented an almost entirely new nomenclature for dermatology, most of which has been quite forgotten, but the terms syphilide, dermatosis, keloid, dermatolysis, which are still in common use, owe their genesis to his ingenuity. Alibert was at his best in his clinical demonstrations, which he conducted, whenever weather permitted, in the open air under a tree, which is still exhibited with pride to visitors to the hospital. The professor stood on a low platform, while close to it were seated the patients decorated with labels bearing the names of their complaints, which he proposed to illustrate. The pupils occupied benches around.

Alibert was by no means a dry-as-dust lecturer; he illustrated his discourse with quotation, epigram, and metaphor, and his classes attracted men from every part of France and from every country in Europe. Such was his reputation as an orator that he was in great demand to pronounce those funeral orations which are one of the forms of tribute that the French are in the habit of paying to the memory of departed merit. That which he gave on Spallanzani, writes Dr. Brodier, placed him in the front rank of contemporary orators.

In those days the first impression produced on any thinking physician confronted with a mass of patients, all the subjects of cutaneous affections, must have been one of intense bewilderment at the chaotic state of affairs before him. He had no guide to the relationships of the various eruptions presented to his gaze, and his confusion was necessarily heightened by the notorious multiformity of many dermatoses. In these circumstances the most pressing desire of dermatologists was for some sort of classification whereby this amorphous mob of pathological conditions could be reduced to order. Alibert felt this need to the full, and, influenced by the success which had attended quite recently the classification of the animal and vegetable kingdoms into orders, genera, and species, attempted to do the same for diseases of the skin. He produced an elaborate classification on botanical lines which he depicted graphically in the form of a tree, "l'arbre des dermatoses." This was famous in its day, but it was soon found that the divisions to which he assigned various skin conditions were unnatural and unsatisfactory, and it was not long before the scheme was abandoned for the less ambitious but more rational classification of Willan, based on the primary lesions of the diseases investigated. Indeed, Biett, Alibert's most famous, and long his favourite, pupil, was the chief agent in introducing Willan's work into France, and his advocacy of the British school caused a serious estrangement between them.

Alibert was a prolific writer, not only on dermatology, but also on therapeutics and general literary subjects; his most important work was the *Monographie des Dermatoses*, which was lavishly illustrated by the best artists he could find. It was the first illustrated book on diseases of the skin to be published in France.

Alibert continued to live in Paris till his death. He had many friends in the literary as well as the scientific world, and was very hospitable. He died on November 4th, 1837, and his funeral oration was pronounced by Cruveilhier.

The picture Dr. Brodier has drawn of Alibert as a man and a clinician in the eight chapters of his book is that of a generous, warm-hearted, eloquent son of France, a keen physician, proud of his profession, in which he takes high, if not the highest, rank, as the founder of the French school of dermatology.

H. HALDIN-DAVIS.

[1] *J.-L. Alibert, Médecin de l'Hôpital Saint-Louis* (1768-1837). By L. Brodier. Paris: A. Maloine et Fils. (Roy. 8vo, pp. 390; illustrated. Fr. 40.)

British Medical Journal.

SATURDAY, FEBRUARY 21st, 1925.

ACUTE FOOD POISONING.

BACTERIAL food poisoning in this country is almost invariably due to infection of food with bacteria of the salmonella group, such as set up acute gastro-intestinal irritation revealed by vomiting and severe diarrhoea. The more serious form of food poisoning, botulism, is of an altogether different character and is fortunately extremely rare in these islands. The group of microbes now spoken of as the salmonellas may be more familiar to some readers by another name, such as the Gaertner group or the paratyphoid-enteritidis bacteria. The name "Gaertner group" was satisfactory whilst we thought that the *Bacillus enteritidis* of Gaertner was the commonest or most important member of the family; but when later it became apparent that this title was inadequate and misleading the food poisoning bacteria were more frequently referred to as the paratyphoid-enteritidis group—a cumbersome denomination from which we have been delivered by a further advance of knowledge which separated the paratyphoid bacteria proper from the common agents of food poisoning. The hitherto less popular name "salmonella" has been kept alive by some bacteriologists from the beginning, and now seems the most suitable appellation, in spite of the fact that it may erroneously suggest some connexion with salmon, and so give the impression that this fish is particularly associated with food poisoning. The name salmonella has fewer drawbacks than any, and possesses historical justification, being the first name these microbes received. It was, we believe, originally proposed by Lignières, after Dr. Salmon, who isolated the bacillus of hog cholera.

The salmonella bacteria have always been a troublesome genus to the bacteriologist. Alike in morphology, and almost alike by common culture tests, the members of this group can only be distinguished from each other by agglutination reactions. Serological tests easily separate Gaertner's bacillus from the paratyphoid group, but great skill and patience are needed to distinguish the individual paratyphoid bacilli A, B, and C from *B. aertrycke* and *B. suipestifer*. The ultimate court of appeal, the agglutination absorption test, has discriminated a steadily increasing number of new types of paratyphoid bacilli, given different names by different workers, thereby adding to the confusion.

We welcome the Medical Research Council Special Report No. 91, entitled "An Investigation of the Salmonella Group, with Special Reference to Food Poisoning,"[1] chiefly because it contains important information about the distribution of the food poisoning bacteria and the way in which they act, but we are glad also that it gives an authoritative lead in terminology. This is found in the first part, which records the serological studies Mr. Bruce White has carried out on the classification and behaviour of bacilli of the salmonella group. We do not propose to enter into the details of these experiments, though they are of much technical interest, but observe in passing that Mr. White's conclusions support Dr. Schütze's classification, even if they call for some eliminations and the addition of at least one new type. He distinguishes *B. enteritidis*, *B. paratyphosus* A, *B. paratyphosus* B, *B. aertrycke* (four types), *B. suipestifer* (including *B. paratyphosus* C and the hog cholera type), and *B. abortus equi*.

In the second part of the report Dr. Savage and Mr. White arrive at some very important conclusions about the distribution and disease-producing powers of the different members of the salmonella genus. *B. aertrycke* is the commonest agent of food poisoning in man; it causes enteritis in mice, guinea-pigs, rats, birds, and calves. The paratyphoid B bacillus does not cause food poisoning; it possesses no irritating toxin; though responsible for paratyphoid fever in man, animals are not susceptible to this infection. Gaertner's bacillus causes food poisoning in man and illness in animals, notably cows and rats. *B. suipestifer* has a low virulence for man, and can cause food poisoning only in exceptional circumstances; occasionally it is a primary cause of disease in pigs, but usually only a secondary invader of pigs suffering from hog cholera. These views contradict many oft-repeated statements about the paratyphoid B bacillus and the suipestifer bacillus, but they bring a welcome order into this ill assorted group. The scheme which the Ministry of Health promoted early in 1921 for the investigation of outbreaks of food poisoning has given Dr. Savage unique opportunities for the study of the salmonella bacteria, but we need not accept his views out of deference to his experience alone, for in the third section of the report we come across some experiments which will be impressive to the unconvinced.

Outbreaks of acute gastro-enteritis due to canned foods are usually characterized by rapid onset and rapid recovery; no pathogenic bacteria can be isolated from the sufferers or from the food, and the blood serum does not as a rule show agglutinins for the salmonella bacteria. Feeding experiments by giving the peccant food to animals yield negative results, but by inoculating animals with the food it is sometimes possible to work up low titre antiserum for salmonella bacilli. The essential feature, therefore, appears to be the existence of a toxic substance having a local irritant action, and to investigate this Dr. Savage and Mr. White adopted the plan of feeding young rabbits with large doses of salmonella bacilli and killing them after six to eight hours, to observe the appearance of the stomach and intestine. In this short interval no symptoms appeared: there was no diarrhoea and no vomiting. When *B. aertrycke* or Gaertner's bacillus was given by the mouth to animals, using either living germs, or cultures killed at 60° C., or cultures boiled for ten to thirty minutes, a well marked irritant action on the stomach and duodenum was noticed; in some cases the stomach was violently inflamed, much swollen, and showed many petechial haemorrhages. Dr. Savage and Mr. White obtained a strong impression, which, however, could not be definitely confirmed, that the heating of suspensions of the aertrycke bacillus and Gaertner's bacillus tended to accelerate the irritant action on the alimentary tract. No such irritant action was noticed after feeding animals with cultures of the paratyphoid B bacillus.

Both Mr. White and Dr. Savage thought to confirm these results by experiments on themselves. Mr. Bruce White observed sensations of tingling and a rash with injection of hair follicles when cotton-wool pads soaked in emulsions of aertrycke bacillus were strapped on his arm, but no definite reaction with the paratyphoid B bacillus. Dr. Savage consumed an emulsion of an agar slope of the paratyphoid B bacillus

[1] H.M. Stationery Office, or through any bookseller. Price 3s. 6d.

heated at 66° C. for thirty minutes, and another heated at 100° C. for twenty minutes, and noticed no irritant action on the alimentary tract. From these experiments they conclude that heat-killed salmonella bacteria, particularly those responsible for food poisoning, exert a marked irritant effect on the intestines; this irritant action is slight or absent with paratyphoid bacilli B and C. The irritant action is local and independent of the immunity of the animal to invasion by the living microbes.

These and other experiments recorded in this report must lead to a revision of views about some of the food-poisoning bacteria. It seems that the paratyphoid B bacillus ought not to be included in this group. Under natural conditions it only attacks man and causes paratyphoid fever only. It differs from the true food-poisoning bacteria in not possessing the same irritant effect on the bowel, and in the fact that it readily penetrates the intestinal barrier and can be found in the blood. The longer incubation period and gradual onset of paratyphoid fever afford clinical evidence against local irritant action. Outbreaks of food poisoning alleged to be due to paratyphoid B were in reality caused by some other microbe. *B. aertrycke* and Gaertner's bacillus have a wide range of natural hosts, including man, mice, rats, and most domestic animals. They differ from the paratyphoid B bacillus in possessing marked irritant action on the bowel and in not invading the tissues of the body in man, though they are markedly invasive for other animals; the low agglutination titre of the blood of patients suffering from infections caused by *B. aertrycke* and Gaertner's bacillus is explained by the lack of general invasion. The toxin which these bacteria form when living in food is not destroyed by boiling. For *B. suipestifer* the pig is the natural host, and it still remains to be decided whether it and the paratyphoid C bacillus are separate organisms. Probably the suipestifer bacillus is frequently ingested by man, but only one outbreak of food poisoning in England has been definitely traced to it; in this outbreak, investigated by Dr. Savage, cheese was the offending article.

To sum up, probably three-quarters of the outbreaks of food poisoning in England are due to the aertrycke bacillus, and the low death rate (about 1 per cent.) may be explained by the low invasive power of this bacillus. Next in importance is Gaertner's bacillus, which causes a more serious infection as a rule. Other salmonella bacteria play a very small part, if any, in acute food poisoning.

CHEST SURGERY.

CHEST surgery seems to be only just in the making. Although Macewen was the first surgeon to demonstrate that thoracotomy could be safely performed without special pressure chambers, British surgeons did not follow his lead, and British surgery has, on the whole, left the thorax somewhat neglected. Perhaps one reason for this is that in chest surgery there must be close co-operation between physician and surgeon, so that diagnosis and operative technique may advance together. It is the same in brain surgery: the physician must diagnose and localize correctly; but he must do more, he must inform himself of every advance the surgeon makes, so that they may together judge of further possibilities. Even though the surgeon be a most skilled diagnostician, cases requiring intrathoracic surgery will not come to him until they have passed through the hands of the general practitioner (and perhaps the consulting physician too). Most of the present generation of practitioners can recall the time when cases of appendicitis did not find their way as a matter of course to the surgeon. There is to-day no great eagerness to seek a surgical opinion on purely thoracic cases; yet without this there can be no advance.

Professor G. E. Gask's address to the Southampton Division of the British Medical Association on the possibilities of exploratory thoracotomy, with which this issue opens, comes as a timely reminder that, in the words of Pierre Duval, "surgery of the lung takes its place amongst the recognized procedures of general surgery."[1] Professor Gask refers briefly to the evolution of thoracic surgery during the war—an evolution to which he himself was no small contributor, with the assistance of his physician colleague Dr. K. D. Wilkinson. At first the honours lay with the French surgeons, notably Duval, but at the end of the war the surgeons of the British army were no less bold and no less successful. The great progress made during the war in the surgery of gunshot wounds of the chest, and the advantages derived from collaboration between surgeon and physician, were clearly indicated in the paper by Mr. A. L. Lockwood and Professor J. A. Nixon which appeared in the BRITISH MEDICAL JOURNAL early in 1918.[2]

The problem Professor Gask sets out to consider is the extent to which the lessons of war surgery may be applied to intrathoracic surgery in civilian practice. Everyone knows now that a wide opening of the thorax is not followed by complete and dangerous collapse of the lung. After thoracotomy the chest can be closed completely and the wound will heal by first intention. These two facts alone constitute landmarks of supreme importance. Professor Gask advocates that, in cases where there is evidence of pus within the chest which cannot be localized by ordinary clinical methods of examination, a deliberate exploratory thoracotomy is as sound a surgical procedure as exploratory laparotomy in like circumstances. It seems clear that this must become the rule in the very near future. Tumours of the chest offer another field for operative surgery, even though, as Professor Gask says, they are more often than not malignant. It must be remembered, however, that the possibility of malignancy does not prevent exploratory laparotomies, and removal in such cases is sometimes successful even when the growth is malignant.

Of pulmonary tuberculosis and bronchiectasis Professor Gask speaks with more hesitation, and he gives the impression that he is almost content to rest satisfied with the old and well tried method of incision and drainage for empyema. But the failures that occasionally follow this method of treating empyema are too many and too distressing for us not to hope for something better. It is a method that seems to take too little into account the ultimate restoration of function in the affected lung. At present we appear to be satisfied with mere saving of life, and to be almost unconcerned about the patient's subsequent health. The chronic discharging sinus following empyema is a reproach to modern surgery, and Estlander's operation is nothing else than the setting of the seal on hopeless failure.

The medical profession is sometimes slow to realize that new methods of treatment have passed beyond the experimental stage and are well established as safe and sane procedures. Chest surgery is now in that position.

[1] Duval: *War Wounds of the Lung* (J. Wright and Sons, 1918), Author's preface.

[2] Lockwood and Nixon: War Surgery of the Chest. BRITISH MEDICAL JOURNAL, January 26th, 1918, p. 105; February 2nd, 1918, p. 145.

A MEMORIAL TO SIR JAMES MACKENZIE.

THE Institute for Clinical Research at St. Andrews was established by Sir James Mackenzie five years ago, and readers are aware, through the series of papers communicated by him to this JOURNAL, of the great amount of work of fundamental clinical importance already accomplished there. Through Mackenzie's own efforts and his extraordinary generosity in providing money, the building, together with well equipped chemical and bacteriological laboratories, is the property of the council, and he himself and his personal friends, assisted by grants from the Carnegie Trustees and the Medical Research Council, have met current expenses. It was his ardent hope that the work he began there would be permanent, and no effort is being spared by the council and staff of the institute to give effect to the aims he had in view. An appeal is now being made for contributions to meet the cost of maintenance. It is true to say that of all he accomplished nothing lay nearer his heart than the welfare of this institute, and there could be no more fitting tribute to his life and work than the placing of the institute on a sound financial basis. It has been ascertained that a sum of about £60,000 will be required to produce the minimum income necessary for the scheme, and of this amount £7,000 has already been collected. In future the institute will be known as "The James Mackenzie Institute for Clinical Research, St. Andrews." Donations towards securing its establishment as a permanent memorial to its distinguished founder will be gratefully received and acknowledged by the Honorary Treasurer of the Institute, Commercial Bank, St. Andrews.

PRESERVATIVES IN FOOD.

DRAFT regulations have been prepared by the Ministry of Health and the Scottish Board of Health to give effect to the principal recommendations of the recent Departmental Committee on the use of preservatives and colouring matter in food. The regulations propose to prohibit the use of preservatives in food with the exception of sulphur dioxide and benzoic acid. The use of a specified proportion of sulphur dioxide would be permitted in sausages, jam, fruit and fruit pulp, dried fruit, beer and cider, alcoholic wines, non-alcoholic wines and cordials, fruit juices sweetened and unsweetened; the use of benzoic acid would be permitted in coffee extract, non-alcoholic wines and cordials, fruit juices sweetened or unsweetened, sweetened mineral waters, and brewed ginger beer. No article of food, however, would be allowed to contain both sulphur dioxide and benzoic acid. The regulations would prohibit the use in food of certain metallic colouring matters, one vegetable colouring matter, and some coal-tar colours. Where sausages, jam, and coffee extract contain preservative the fact is to be stated on a label, and labelling would also be required in the case of articles sold as preservatives of food. The regulations would apply to imported articles as well as to articles produced in this country, but not to articles intended for export or re-export. Copies of the regulations can be obtained from H.M. Stationery Office, Adastral House, Kingsway, London, W.C.2, or 120, George Street, Edinburgh.

CONGRESS ON SEASIDE TREATMENT OF RICKETS.

THALASSOTHERAPY is defined as embracing all methods of treatment in which sea air, sea water, and seaside sunshine take a share; the French Association of Thalassotherapy, founded thirty years ago by Professor Verneuil of Paris, has, by a natural process of development, added heliotherapy in general, and this, if widely interpreted, might take the association sometimes to the mountains. Sea air might also be held to include sea voyages, and, as our French correspondent told us last week, the profession in France is beginning to experiment. This, however, only by the way, since for this spring an International Congress of Thalassotherapy is to be held at Arcachon. The long coastline of France is dotted with seaside places from the Belgian frontier to Hendaye, almost within earshot of Fontarabian echoes. It can boast also many places on its Mediterranean seaboard where sun, if not fresh sea air, can often be enjoyed even in winter. Arcachon is a sandy place backed by far-stretching pinewoods on a land-locked inlet of the Bay of Biscay, and ought to be very agreeable at the end of April, when the congress is to assemble for the discussion of the seaside treatment of rickets. The subject will be introduced by representatives of Great Britain (Dr. Leonard Hill and Dr. Webster), France (Dr. Armand Delille), Italy, Belgium, and other countries. A speaker may use his mother tongue, and papers on subjects other than rickets may be contributed, but the committee does not undertake to publish them save in abstract. The congress proper lasts three days (April 27th to 29th), and on May Day the members are to start on a motor trip to Biarritz, about one hundred miles away, and then to St. Jean de Luz and Hendaye, where the French Antituberculosis Society, whose headquarters are in Paris, has one of its sanatoriums for children. The third article of the regulations is that "these congresses are essentially scientific," but it will have been gathered that the committee in Paris knows how to mingle pleasure with business. It has taken steps also, with the co-operation of the hotel keepers and motor proprietors, to protect the pockets of those attending, and the Southern Railway Company will issue first-class tickets to Arcachon and back for £10 2s. 3d. (second class, £7 3s.). At a meeting held at Sir StClair Thomson's house last week a British Committee was formed with him as president and Dr. Campbell McClure (65, Wimpole Street, W.1) as honorary secretary, but subscriptions should be sent to the treasurer, Dr. Robert Pierret (7 bis, rue Raynouard, Paris 16). The president of the congress is Dr. Gilbert, professor of clinical medicine in Paris.

THE FIRST BOOK IN ENGLISH ON DENTISTRY.

IN 1686 Charles Allen, about whom the *Dictionary of National Biography* is silent, brought out in Dublin a book of fifty-eight pages, *The Operator for the Teeth, showing how to Preserve the Teeth and Gums from all Accidents as also the Description and Use of the Polican*; the only known copy is in the library of Trinity College, Dublin. In the following year, 1687, there appeared a second edition or reprint with an altered title, *Curious Observations in that difficult part of Chirurgery relating to the Teeth, shewing How to Preserve the Teeth and Gums from all Accidents they are subject to*[1]; seven copies are known to be extant, and from that in the British Museum (782, 1.5 (1)) a reprint has been made. Allen considered that he was the first to write on the subject, and Miss Lilian Lindsay, who contributes an introduction, remarks that Berdmore, nearly a century later, made a similar statement, and that the value of Allen's book is not so much its priority or its contents as that it is one of the rare examples of Dublin printing in the seventeenth century—probably one of the most disastrous that even distressed Ireland has ever experienced—when the hearts of writers and printers alike failed them for fear to publish. The surviving part of his teaching is the importance to be attached to the care of the teeth in early life, which is "conducive to the preservation of life and health of children . . . and to the preventing of all those infirmities wherewith they are afflicted." It is dedicated "To the most Honourable and Truly Learned The Physitians, Chirurgeins, and Apothecaries of the City

[1] *Curious Observations on the Teeth.* By Charles Allen. The first known book on dentistry in the English language, 1687. With a short introduction by L. Lindsay. Dental reprints No. I. London: John Bale, Sons, and Danielsson, Ltd. 1924. (Fcap. 8vo, pp. viii + 26; 1 plate. 5s. net.)

of Dublin," and on the next page, under the original title "The Operator for the Teeth," has a proem beginning with the laudable and disarming sentiment, "Knowing that it is the duty of every man, and especially of such as live under a Civil Government, (where the general Interest always includes the particular) to contribute as much as he can (in his own station) to the publick Good." The work contains seven sections, dealing with: the Nature of the teeth; the alterations of the teeth, with their remedies; the corruption of the teeth, with their remedies, whereto is annexed the description and use of the polican; the restauration of the teeth; the tooth-ake, looseness of the teeth, and decay of the gums, with their remedies; children's teeth; and the "acceleration of the teeth," which gives instructions how to hasten the growth of children's second teeth and also "those in men that are called the teeth of wisdom."

GUY'S HOSPITAL BICENTENARY.

A SPECIAL number of the *Guy's Hospital Gazette* has been published to commemorate the bicentenary of the hospital and the centenary of the medical school. Sir William Hale-White, consulting physician to the hospital, contributes a most valuable history of the institution, which is illustrated by interesting prints of the building at different periods. Mr. H. L. Eason, medical superintendent and ophthalmic surgeon to the hospital, supplies details of its present size, constitution, and general activities, and so affords a basis of comparison with the position in 1725. A history of the medical school is contributed by the dean, Professor T. B. Johnston; and the story of dental surgery at Guy's is related by Mr. F. J. Pearce, who points out that though the dental school was only inaugurated in 1889, yet the first dental surgeon, Joseph Fox, was appointed in 1799, and the hospital was probably the first to institute courses of lectures on dental surgery. The history of the *Guy's Hospital Gazette* is sketched by the editor, Mr. L. G. Housden, who describes its progress since a second-year student, T. Cattell-Jones, brought out the first number on October 1st, 1872. Miss F. A. Sheldon, who was lady superintendent of Guy's Hospital Trained Nurses' Institution from 1913 to 1922, writes an interesting account of nurses and the development of nursing at Guy's Hospital during the last two hundred years. Many quaint details, and some even quainter photographs, of the nurses of early times are furnished. Miss Sheldon contributes also a short account of the Guy's Hospital Trained Nurses' Institution, maternity charity, and midwifery training schools. The various students' clubs (in particular the Rugby Football Club) are dealt with, and the volume also includes a description of Guy's Hospital Ladies' Association by Mrs. Lauriston Shaw. The very high standard of the printed matter and the illustrations in this bicentenary number will undoubtedly secure for it the popularity it deserves, especially as the price is only 2s. 6d. a copy. It may be obtained from the *Gazette* Office, Guy's Hospital, S.E.1.

CENTRAL AMERICAN DISEASES.

DR. ALDO CASTELLANI visited Central America in the course of last year, and has now published in the *Journal of Tropical Medicine and Hygiene* for January 1st an account of some observations of diseases of Central America. He describes at length the pathology of "Guatemala nodules," a form of filariasis occurring on the Pacific slopes of that country. He is inclined to believe that further investigation will show that this condition is also present in other Central American countries. He takes the view that it is not identical with African volvulosis, though very similar to it. Two types of Central American myiasis are distinguished according to whether the fly larva is the true cause of the condition or only a secondary invader. A short account is given of rhinoscleroma, a disease generally associated with Eastern Europe, particularly Austria, Poland, and Russia. It is extremely rare in the tropics, with the exception of Guatemala, where Dr. Castellani saw six cases, in three of which ulcerative processes were present, though apparently secondary. With reference to alastrim, in Jamaica, he takes the view that this disease and small-pox are due to two slightly different viruses. Although the two eruptions can hardly be distinguished, yet the general condition of the patient in alastrim is remarkably good, and secondary fever is generally absent. Furthermore, the scarring and pitting in convalescents from alastrim was much less marked than in the case of small-pox.

INFLUENZA.

LAST week the number of deaths from influenza in the great towns of England and Wales again increased, from 202 to 291, a considerably greater increase than in the previous week, when only 7 more deaths were recorded than in the week before. The chief reason is that London and the South are now involved; the deaths in London increased from 48 to 76. Two cities other than London—Manchester (23), Leeds (12)—recorded more than 10 deaths; Rochdale and Norwich had 9 each, Bolton and Salford 8 each. The indications are that the deaths will continue to increase in numbers for some weeks more, but there is still no suggestion that the scale of the mortality will be greater than, or even as great as, that of 1923-24. The country has heard with great regret that the King is one of the latest victims of the epidemic, and that his attack is complicated by bronchitis. Fortunately it does not seem to be of great severity, and as it has been taken in good time there is every reason to expect that His Majesty will quickly be restored to health.

"THE CRIPPLES' JOURNAL."

WE have received the third quarterly issue of the *Cripples' Journal*. It is published by the Shropshire Orthopaedic Hospital at Oswestry, and aims at making known and helping to relieve the surgical needs of all the crippled persons in this country. Indeed, it may in some sort be considered as the organ of the Central Committee for the Care and Cure of Cripples. At the same time it provides its non-medical readers with a good deal of information on orthopaedic matters. This number contains some valuable contributions. Professor Patrik Haglund of Stockholm gives an account of the care of cripples in Sweden, and describes the three recognized State-aided institutions at Stockholm, Gothenburg, and Helsingborg, and of the measures taken for training the patients in handicrafts and trades. A scheme for the extension of Government aid, formulated by a Royal Commission over which Professor Haglund presided, is at present under consideration. There is a report by the Rev. Ratcliffe Barnett and Mr. W. A. Cochrane of Edinburgh Royal Infirmary on "The cripple [why not crippled?] child in Scotland: what is and what might be." Mr. Cochrane freely confesses that it was only during his service in the orthopaedic department of a large hospital in war time that he "learned the first meaning of the word orthopaedic." If this was the case with a surgeon of Mr. Cochrane's standing it is not wonderful that the profession in general and the lay public should for so long have remained unaware of their ignorance. It is to be hoped that Mr. Cochrane is not alone in receiving enlightenment, and that the lessons of 1914-18 will not be forgotten. The case of Northern Ireland is well stated by Mr. Archibald Irwin of Belfast. Mr. Rocyn Jones begins a scholarly and comprehensive

historical review of orthopaedic surgery from the time of Hippocrates. Dr. Maurice Nicoll writes on "Psychological reaction to deformity." Our own observations do not enable us to corroborate Dr. Nicoll's view of the seriousness and frequency of the feeling of inferiority in cripples. In very many cases the physical disability seems to be compensated to some extent by the gift of an unusual amount of high courage and even self-esteem. The other articles in this number are well worthy of the standard set up by its foregoers.

IDENTIFICATION OF CANCEROUS TUMOURS.

THE Association Française pour l'Étude du Cancer has undertaken to issue a series of plates to serve as standards for the classification of cancerous growths, and has appointed an influential committee to carry out this somewhat difficult task. The plates will be gathered into an atlas, which, when complete, will constitute an illustrated catalogue of the diverse species and varieties of cancer of every organ of the body, and thus serve as a work of reference on occasions when the nomenclature of tumours is a source of ambiguity, as is not infrequently the case. The nomenclature of tumours is not fixed; different terms are employed to denote the same tumour, and at times the same term is used for different tumours, so that in reading works that are not provided with good illustrations it is not always easy to recognize exactly what growth is under discussion. A more serious disadvantage of a defective nomenclature results from the circumstance that there exists a relation between the morphology of a tumour and its evolution—that is, its tendency to local extension, to generalization, and to glandular invasion. Statistics bearing on these matters have often proved false through failure to discriminate clearly between the varieties of growth to which an organ is subject. The aim of the association, however, is not to impose a new nomenclature, for, however sound the principles of classification adopted might be, the tendency to adhere to accustomed terms would stand in the way of its general acceptance. The difficulty involved in the use of names can be avoided by substituting for them figures of the growths themselves, thus making use of a language at once objective and universal, since it is independent of verbal symbols. The plates will be exact reproductions of the preparations, chosen from a great number of specimens as being representative of the conditions illustrated. It will suffice, it is hoped, in the future, whatever name may be given to a tumour, to indicate the plate of the atlas to which it corresponds, and all ambiguity as to the particular type of growth referred to will be avoided. The atlas is being issued in parts, and the fasciculus before us,[1] which is edited by Bazy and Peyron, contains five plates comprising fifteen figures, illustrating carcinoma and chorion-epithelioma of the Fallopian tube, and chordoma. There can be little doubt that the diagnosis of sections of these tumours could be made by referring to the plates by way of comparison, even by those who could not claim to have expert knowledge of the subject. The aim of the French association may be said to have been fulfilled in these instances, and, provided that a similar standard is maintained throughout, the completed work will be of great value. It is no exaggeration to say that the figures are artistic productions. It too often happens that coloured plates, while giving a perfectly accurate representation of a microscopic section, fail to reproduce the elements of beauty that are always present to the eye of the artist, and upon which a real likeness greatly depends. On the other hand, if the artist, however skilful, is not also a pathologist, it is an almost universal experience that what may be called the pathological likeness fails to satisfy. Neither of these defects is observable in these plates, a result which is due, not only to the technical excellence of the reproduction, but also to the fact that the pathologists are their own artists, and have had at heart both artistic effect and scientific accuracy. As a consequence of this combination of qualities the figures produce an impression almost identical with that of an actual section, as is well seen in Bazy's figure of chorion-epithelioma. Accompanying the plates is a general histological description of the tumours and of their tendency to extension and generalization. With regard to the execution of the work, it has been arranged that each of the twenty-seven members of the committee shall undertake the illustration of one organ or tissue, while collaborating in all parts of the work for the provision of the best possible preparations and deciding upon the most representative sections.

[1] *Atlas du Cancer.* Par L. Bazy et A. Peyron. Deuxième Fascicule (Juin, 1923). Paris: F. Alcan. 1923. (9¼ × 12½, not numbered; 5 plates. Fr. 25.)

LEMON JUICE AND LIME JUICE.

IT will, we believe, be a surprise to many to learn that an antiscorbutic no longer forms part of the regular dietary of the Royal Navy. Probably in these days of short voyages, when a vessel is seldom more than a few weeks away from a port, this does not greatly matter; but it is rather disconcerting to know that the Admiralty relied for many years on the antiscorbutic properties of lime juice. They are very low, and the Nares polar expedition in 1875 suffered severely in consequence. What then happened was almost of the nature of a scientific experiment, for, as Sir Percy Bassett-Smith reminds us in his letter published this week (p. 385), one of the ships was supplied with lemon juice and had very few cases of scurvy. During the war the clinical evidence that lime juice is inferior to lemon juice as a preventive of scurvy was conclusive, and it was confirmed by experiments at the Lister Institute and at the Royal Naval Hospital, Greenwich. Sir Percy Bassett-Smith then succeeded in devising an evaporated lemon juice which could be made up into tablets each containing the equivalent of half a lemon, and kept well. When and why lemon juice, recommended by Lind in the middle of the eighteenth century, and forced upon the Admiralty by Blane at its end, was abandoned for lime juice nobody seems to know; but in spite of all that was learnt before and during the war the Admiralty continues to issue lime juice and not lemon juice, although it now admits that lime juice is not an antiscorbutic, and issues it merely as a temperance beverage which many people find palatable. So long as the Admiralty remembers that it is not an antiscorbutic this, as has been said, probably matters very little nowadays, except in special circumstances. Such circumstances are sometimes afforded by vessels stationed in the Persian Gulf, and certainly might easily arise in any expedition to the Arctic or Antarctic. The memory of the Admiralty is said to be long; we hope it will prove to be so in this instance.

"PHYSIOLOGICAL ABSTRACTS."

Physiological Abstracts is the title of a journal published monthly by the Physiological Society of Great Britain and Ireland in order to present promptly and in a concise form abstracts of papers published throughout the world in journals of physiology and the allied sciences. Some idea of the huge extent of physiological literature at the present day may be gathered from the statement that abstracts are taken from about 250 journals, and that the total number of abstracts in the yearly volume is about 5,000. The work is done by fifty abstractors, each an authority on the particular kind of original work dealt with. The abstracts are grouped into twenty-three sections, so that a note on an original paper on any subject can be readily found. Each number has an author index, and a complete author

and subject index is published in the March number in each year. Volume X begins with the issue of next April. The price of a single number is 5s.; the annual subscription is 42s., payable to Messrs. H. K. Lewis and Co., 28, Gower Place, London, W.C.1, or payment may be made through any bookseller. Back numbers can in most cases be supplied, but an extra charge is made for some the stock of which is nearly exhausted. The value of the publication in enabling workers in biological and medical sciences to keep abreast of contemporary research is great, and is, we believe, fully appreciated by them. The periodical is included among those filed in the Library of the British Medical Association.

LECTURES AT THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

THE courses of spring lectures at the Royal College of Physicians of London will begin on March 5th, when Dr. Salusbury MacNalty (medical officer, Ministry of Health) will give the first of a course of three Milroy Lectures on epidemic diseases of the central nervous system. Dr. J. A. Ryle (Guy's Hospital) will deliver the first of his Goulstonian Lectures, on the study of gastric function in health and disease, on March 17th. Dr. Hector Cameron (Guy's Hospital) commences his Lumleian Lectures, on some forms of vomiting in infancy, on March 26th. The Oliver-Sharpey Lectures, on the interpretation of the electromyogram, will be given by Dr. E. D. Adrian, F.R.S. (University lecturer in physiology, Cambridge), on May 5th and 7th. The first of the course of four Croonian Lectures by Dr. S. A. Kinnier Wilson will be delivered on June 9th; the subject is disorders of motility and of muscle tone, with special reference to the corpus striatum. The lectures will be given at 5 o'clock on each day. Any member of the medical profession will be admitted to any of the lectures on presentation of a visiting card.

THE Lettsomian Lecturer before the Medical Society of London this year is Sir Bernard Spilsbury, whose subject is "Wounds and other injuries in their medico-legal aspect." In the first lecture, delivered on February 16th, he discussed bruises, crushing injuries of the chest and abdomen, and wounding by firearms. The second lecture, on Wednesday, March 4th, will deal with incised wounds and punctured or stab wounds; the third, on Monday, March 16th, with fractures of the skull. The lectures will be given at 9 p.m. at the house of the society (11, Chandos Street, Cavendish Square, W.).

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Ministry of Health.

No bills on medical subjects or on public health have come under discussion in the House of Commons as yet, and the Supplementary Estimates for the Ministry of Health were passed without any mention of the health services, a long debate being occupied solely with housing. A token vote of £10 for the Ministry of Health covered an additional grant in aid of £650,000 for medical benefit, sickness and maternity benefits, and other expenditure under the National Health Insurance Acts. The expenditure was offset by savings which included £54,000 anticipated saving on maternity and child welfare, £55,000 on the treatment of tuberculosis, and £48,000 on the treatment of venereal diseases.

Sir John Gilmour, the Secretary for Scotland, has introduced a Public Health (Scotland) Amendment Bill to authorize local authorities to make arrangements for providing medicines and treatment to persons suffering from diabetes, and for purposes connected therewith. Its purpose is to ensure the legality of the supply of insulin by public bodies.

Bills presented by private members include a Sale of Food and Drugs Act (1875) Amendment Bill, to regulate the liability of milk producers in respect of milk adulteration, supported by a group of agricultural members. There is also a Public Health Bill, to amend the Public Health Acts, 1875 to 1907, and the Baths and Washhouses Acts, 1846 to 1899, in respect of matters for which provision is commonly made in local Acts, and for other purposes relating to the public health, presented by Mr. Womersley (U., Grimsby).

Medical Committee.

The Medical Committee of the House of Commons, which has been joined by Dr. Vernon Davies (U., Royton) and Mr. H. Haslam, D.Sc. (U., Horncastle), a bacteriologist, will meet on Monday to discuss the Nursing Homes (Registration) Bill which Mr. Gerald Hurst (U., Moss Side) is to introduce on the following day. The bill has been prepared by the College of Nursing. Mr. Hurst will attend the meeting to explain its proposals to the Medical Committee, and Dr. Cates, the county medical officer for Surrey, will also attend.

Salaries of Medical Officers of Health.

Mr. Albery (U., Gravesend), on February 12th, asked the Minister of Health whether his attention had been called to the controversy affecting the scale of payment of medical officers of health; whether he was aware that friction had already arisen with the British Medical Association on the subject; and whether he would consider, to avoid these disputes, the fixing of a scale of salaries which would be agreeable both to the local authorities and to the medical profession. Mr. Groves (Lab., Stratford) and Mr. Evan Davies (Lab., Ebbw Vale) further asked the Minister to consider the calling of a conference between the representatives of local authorities, the British Medical Association, and the Ministry of Health with a view to arriving at an agreed scale of remuneration for medical officers of health. The Minister of Health replied that discussions had taken place on this subject between representatives of these interests, and certain suggestions had been made which were still under consideration. He did not think that any useful purpose would be served by calling a conference at present. Further inquiries on the same subject were put down by Major Steel (U., Ashford) and Mr. Robert Wilson (Lab., Jarrow).

Pensions Medical Officers.—Major Tryon said, in reply to a question, that the chief considerations in determining the continued employment of medical officers in the Ministry of Pensions were efficiency and the possession of the necessary qualifications for the duties to be performed. Subject to these conditions preference was given to a medical officer with overseas service, more especially if he had a war disability. Out of 378 whole-time medical officers of the Ministry of Pensions 288 had served overseas.

Public Health Salaries in Scotland.—Sir Robert Hutchison (L., Montrose) asked the Secretary for Scotland if he was aware that the grant given by the Government towards the salaries and expenses of medical officers of health and sanitary inspectors in Scotland was less than the grant given towards these officers in England; and whether he would see that Scotland got a grant equal to that given in England for this purpose. Sir John Gilmour replied that the difference between Scotland and England arose from the fact that in Scotland the statutory provisions which regulated the distribution of the sums paid into the Local Taxation Account appropriated a fixed annual sum of £15,000 in aid of the cost of medical officers and sanitary inspectors. In England a grant of 10s. per £1 was paid on approved expenditure. The Scottish scheme of distribution could only be revised by Act of Parliament.

Tuberculosis.—In a written answer the Minister of Health has stated that in 1921 71,702 cases of tuberculosis were notified in England and Wales, in 1922 69,259, and in 1923 79,388. The last figure included cases not officially notified. On January 1st, 1923, there were 20,629 beds in approved residential institutions and 15,563 persons received treatment from local authorities in such institutions. On January 1st, 1924, there were 21,419 beds and 16,918 persons received treatment; on January 1st, 1925, 22,086 beds and 18,158 persons. In 1923, the last year for which rates were available, the death rate from all causes per 1,000 persons was 11.582, and from all forms of tuberculosis, per 1,000 persons, 1.062.

Polycythaemia.—In reply to a question by Colonel Wedgwood (Lab., Newcastle-under-Lyme) about the occurrence of polycythaemia in direct connexion with workers in ammonium sulphate, the Home Secretary said that he had heard of only one case of this disease, the cause of which was obscure, and there was no information to justify its being classed as an industrial disease. He did not want to add to the number of scheduled diseases.

Notes in Brief.

The total estimated increase in population of England and Wales from the armistice to December, 1924, is 1,402,000.

It is not likely that special facilities will be given this session for the passage of a bill requiring manufactured food to be labelled with full details of its ingredients.

The question of introducing a scheme of compensation for the grinding trades to cover silicosis, or silicosis accompanied by tuberculosis, has been referred to the Departmental Committee on compensation for silicosis. No further legislation is required.

The Government is not prepared to support an appeal to the Spanish and French Governments to give facilities for sending a medical mission and medical supplies to the Riffs.

THE HUNTERIAN FESTIVAL OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE ORATION.

JOHN HUNTER A MARTYR TO SCIENCE.

SIR D'ARCY POWER, K.B.E., delivered the Hunterian Oration at the Royal College of Surgeons of England last Saturday, February 14th, the anniversary of the birth of John Hunter. The President, Sir JOHN BLAND-SUTTON, was in the chair.

The orator first discussed Hunter's limitations, remarking that these were partly personal and partly due to the backward state of chemistry, physics, and physiology at the time. Writing to Jenner in 1777, Hunter was careful to explain the exact method of using a thermometer which registered by means of a movable scale of ivory attached to the stem of the instrument. But even with such an imperfect instrument he gave the first correct explanation of the cause of animal heat when he stated that "the blood has an ultimate standard heat in itself in health and nothing can increase that heat but some universal constitutional affection." He thus gave the death-blow to "calidum innatum," but missed the opportunity of putting the thermometer to practical use as a measure of fever in the body.

Examples were given of the shifts to which John Hunter was put in order to explain the causes of disease in his ignorance of the part played by micro-organisms. The statement that "true specific disease is one that probably cannot arise but only from one cause and which probably always belongs only to morbid poisons" made it clear that he had some premonition of the real cause, for he gave as an example "scrofula, which is one of those diseases which is supposed to be hereditary, but it is only a readiness to fall into a peculiar action when properly irritated that is hereditary, and when such a cause does not exist we find no scrofula." Surely, said the orator, "nil nisi clavis deest": the key alone is wanting, and the key was not forged until Pasteur and Lister—the master locksmiths of the nineteenth century—came to maturity more than seventy years after John Hunter's death. He was even a little in advance of Lister's early work, for he showed by experiment that "air simply has no power to excite inflammation."

The origin and growth of the Hunterian school were then traced. It began from a desire on the part of surgeons for better teaching than was provided by the United Company of Barber-Surgeons. It spread rapidly as a result of the personal magnetism of John Hunter, who was known to his pupils as "the Dear Man." These pupils were a small band of young men who afterwards became the leaders of surgical thought in England and in America. Sir William Blizard, Sir Astley Cooper, William Hey, John Abernethy, Philip Syng Physick, and John Syng Dorsey in the first generation; Sir Benjamin Brodie, Sir William Lawrence, John Collins Warren, and Valentine Mott in the second; Sir James Paget and Sir William Savory in the third; Professor S. G. Shattock and Sir Arthur Keith amongst ourselves.

Attention was drawn to the physical disabilities under which John Hunter laboured during the last twenty years of his life—disabilities which were the direct outcome of the venereal poison with which he deliberately infected himself to determine whether syphilis and gonorrhoea were due to the same cause. His health began to fail from the time of the inoculation, until during the last eight years of his life he had daily attacks of angina pectoris, often associated with symptoms of syphilitic disease of the brain. His courage was dauntless and his intellectual faculties were so little impaired that he continued to give sound judgements in consultation, to invent new operations in surgery, and to collect the specimens which are now housed in the magnificent museum of the College.

Hunter being dead still speaketh, continued Sir D'Arcy Power, and his work has been crowned since the last oration was delivered by the genius of Professor Elliott C. Cutler—a young American—who has subdued the diseased heart to the hand of the surgeon by the successful removal of portions of the valves in mitral stenosis.

The oration ended with brief eulogies of surgeons who have died lately. Sir William Macewen, a pioneer in the surgery of the brain, lung, and bone. Sir Frederick Treves, who took upon himself the heavy responsibility of postponing at the last moment the coronation of King Edward VII. Professor S. G. Shattock, the humble-minded disciple of John Hunter. Sir Alfred Pearce Gould, the friend and helper of all who had fallen on evil days. Mr. Harrison Cripps, who possessed the rare combination of first-rate business capacity, great powers of administration, and high surgical skill. Sir Charles Ryall, genial and trustworthy. Sir William Thorburn, the exponent in England of the surgery of the spinal cord, dead at the very moment when he was beginning a life of leisure, saddened by the domestic afflictions which the war brought to him. Nor did Sir D'Arcy Power forget to mention Mr. G. P. Newbolt, Mr. R. A. Bickersteth, and Mr. George Heaton, pupils of his own who so worthily upheld the position of surgery in Liverpool and Birmingham.

A series of lantern slides were exhibited, after the oration, made from water-colour sketches by Jesse Foot, who wrote a scurrilous life of John Hunter. They showed Hunter as he appeared to his contemporaries and not as he was idealized by Sir Joshua Reynolds. Sir D'Arcy Power stated that he was indebted to Mr. C. J. S. Thompson, M.B.E., for permission to show the drawings, which are contained in a book in the possession of the Wellcome Historical Museum.

THE BANQUET.

In the evening the President and Council entertained a large party to dinner in the library of the College.

After dinner the LORD CHIEF JUSTICE OF ENGLAND, in proposing the toast of "The Royal College of Surgeons of England," compared in light vein the two great professions of surgery and of the law, and in sketching their early history said that it might be difficult to prove his belief that though surgery was very old, law was slightly older still. Then, becoming more serious, he said that surgery and law resembled each other in this, that their practitioners were called in emergencies; but there was a difference, which was in favour of the law. The lawyer, at any rate, was not suddenly called upon, in a case which seemed likely to be fatal, to do the best he could then and there, on the spur of the moment, with the high probability that death might follow, "and with the distinct risk that there might be a prosecution for negligence."

The PRESIDENT (Sir John Bland-Sutton) also began his reply in light spirit, suggesting that the connexion between the profession which the surgeon so humbly followed and that which Lord Hewart so eminently adorned was, from the point of view of the anatomist, as direct as the hangman's rope, which in the past had furnished surgeons with subjects for anatomical dissection. He then turned to the Museum and its conservators, and recalled how Richard Owen had from a fragment of bone reconstructed, with extraordinary accuracy, a creature the skeleton of which was only much later discovered. Sir John Bland-Sutton recalled the famous passage from Ezekiel about the valley full of dry bones: how God directed the prophet to prophesy upon the bones, and how, when the prophet obeyed, there were shakings and the bones came together, bone to his bone, and the sinews and the flesh came upon them, and the skin covered them. Then, passing to Job, the President recalled the rhapsody about behemoth: how his bones were strong, were as strong pieces of brass, like bars of iron. The Royal College of Surgeons possessed a great collection of bones, and much had been learnt from their study by succeeding conservators; but the collection had never been better or more sanely handled than by the present conservator, Sir Arthur Keith, who possessed the sagacity of Owen, the imagination of Ezekiel, and the rhetoric of Job.

The toast of "The Guests" was given by Sir HOLBURT WARING, one of the vice-presidents, who, after sketching the growth of the Museum, expressed the hope that the Historical Section would expand, and mentioned incidentally that the guests would be able to see after dinner a rib

of King Robert the Bruce, showing that it had at some time been fractured in the place where such an injury most commonly happens—the convex part of the body. The toast was acknowledged by the SPEAKER of the House of Commons. The toast of "The Orator" was given by the Rev. Dr. NAIRN, and acknowledged by Sir D'ARCY POWER.

A Portrait.

Afterwards the guests had the opportunity of seeing a number of specimens of historical interest, including some presented to the College by Sir Astley Cooper. In the conservator's room there was displayed a portrait, said to be of John Hunter and to have been painted by Thomas Gainsborough; but these attributions have not been definitely established in respect of either the subject or the artist. It is certainly a very lifelike portrait, three-quarter length, full face, with the lips parted as though speaking. The figure holds a monkey's skull in the left hand. The face is that of a man past middle age, with a fresh complexion and scanty hair, very full of life and vigour, and evidently very earnest in what he is telling his audience—a very different Hunter from the inspired prophet of the Reynolds portrait; but those so minded could trace a resemblance to the face of the well known portrait of Hunter with the head of his wolf-dog on his knee, a copy of which had been hung beside it.

TRAFFIC DANGERS AND A REMEDY.

BY

CHARLES BUTTAR, M.D.

THE dangers in traffic which arise from the increase in motor driving have an interest for members of the medical profession, for probably a large majority now drive a motor vehicle of some kind, and so are exposed to motoring accidents. As the Government is contemplating a new Road Bill, which will probably supersede to some extent the Motor Car Acts, it would be well for a profession which is closely in touch with the use of motor cars, and is concerned also in remedying the accidents arising therefrom, to consider whether its experience may not be of some use in the moulding of the bill.

When the Motor Car Act of 1903 was framed most people were quite unaccustomed to speed on the public roads, and speed was regarded as the main source of danger. It was useless for the motorist to urge that at a given speed his car could be pulled up in half the distance in which it was possible to stop a hansom cab. The bugbear was the speed of these new-fangled vehicles, and a speed limit was introduced to satisfy the nervousness of the public. The concession of a limit of twenty miles an hour was regarded as most generous, considering that previously all mechanically propelled vehicles had been compelled to crawl behind a man on foot carrying a red flag. In certain places this limit was reduced by half, so that theoretically it was possible for an easily controlled vehicle that could be stopped in half the distance to be passed by a trotting horse or by a bicyclist. The public has probably learnt by now that speed in itself is not necessarily a danger; yet the dangers of the street are very real. If rumour speaks the truth, it is now proposed to abolish the speed limit, and to base charges against motorists solely on the ground of "danger to the public."

The charge of driving to the danger of the public will be brought by a policeman, who in most cases will be quite untrained in motor driving. Have the authorities who are drafting the Road Bill asked how the policeman will form his opinion of danger, and whether the magistrate will have any criterion on which to form a judgement on the evidence? After twenty-three years of motor car driving, during which period I have covered about 150,000 miles in London, and have observed many accidents in which a motor vehicle has been involved, I am convinced that no standard is recognized by which dangerous driving can be gauged. It seems probable, therefore, that the new bill may propose to inflict a great deal of injustice on motorists; and this injustice will result from the fact that there is practically no rule in existence for street users, whether drivers or pedestrians. The only semblance of a rule is the convention that vehicles in this country, when passing one another in opposite directions, keep to the left-hand or near side of the road.

Since there is no rule for street traffic in any way comparable to the rules laid down for ships at sea, it would appear that the only rule observed by the drivers of motor vehicles is that the first man in gets the prior right to the road. This leads to all sorts of misbehaviour—and possible danger—such as cutting in from the near side, turning corners without observing if the road is clear, crossing roads without regard to oncoming traffic, and so on. Yet in any of these contingencies it should be possible to know which person has the right of the road. To meet some of these contingencies another convention has been set up—namely, that traffic from "side roads" should give way to that on "main roads." But very little examination of the roads in London will show that even if this convention is valid to some extent for main road traffic in the country, it is hopeless as a rule for town driving. In countless spots it is impossible for the motorist to know which is the main road and which the side road.

The Right-hand Rule.

In searching for ways to reduce the dangers of the streets many suggestions have been made, such as signposting side streets, codes of signals by means of the arm and hand, and semaphores. These methods are open to objection either on the score of expense, or of possible misinterpretation of the signals, or because they take no account of pedestrians. In any case they all involve complication. What is wanted is a rule in which the safety of the public is the first object—a rule which is simple, easily taught, and applicable to both drivers and pedestrians. Some years ago such a rule was proposed, and obtained the notice of the writer on motor matters in the *Pall Mall Gazette*. This motoring expert set out to find objections to the rule, or what he called the "limiting case"; and the only limiting case he could discover was one which made the position absolutely safe.

The proposal was that every user of the street should be made responsible primarily for avoiding collision with any car or person on his right hand, so that in the event of an accident the onus should be placed on the person colliding with someone on his right-hand side of showing why he did so. Thus, at cross-roads a driver would wait for, and pass behind, any vehicle approaching from his right; at street crossings a pedestrian would always look first to the right; a driver cutting in from the near side, as so often happens in London, would have to explain his reasons for doing so in the event of accident. The limiting case of the *Pall Mall Gazette* was that if four cars were approaching one another on four cross-roads, all the cars would stop, as each driver would have a car on his right hand. And the reply was that the position was, at all events, safe; and safety is the first object of any rule.

The proposed right-hand or off-side rule in driving is not only safe; it would seem also to fulfil the other requirements named above. It is plainly simple, and anyone who uses it consistently will find that the need for signals, semaphores, or signposts marking side roads will completely disappear. Being simple it is also easily taught. Children in primary schools could easily be taught by repetition to look to the right before crossing roads. As soon as any complications are introduced teaching becomes much harder. The police force can be instructed on the importance of watching for any infraction of the rule when an accident occurs. Motoring schools can teach their pupils. Magistrates and judges can raise the point in any case that is brought before them. A small amount of advertisement, together with a few decisions in the law courts, based on the rule, will speedily teach the public. It has already been mentioned that the rule applies with equal validity to pedestrians and drivers.

Order out of Chaos.

Most people are now impressed by the number of casualties which occur annually in the streets. Many people think that there is some sort of code of rules by which motorists drive. But there is no such code in exist-

ence; the decisions of the judges and magistrates are based on no standard; no one has yet defined dangerous driving. The right-hand rule would give a standard and a definition in a very large proportion of cases. It has one disadvantage only: it is so simple that in many minds it arouses the suspicion that there is "some catch in it." No rule, of course, can ever completely abolish accidents. But that the right-hand rule can prevent many, if not most, accidents should be plain to anyone who cares to study the circumstances in which a medical man recently lost his life. He was standing on the pavement near the crossing of two roads of equal importance from the traffic point of view. Along one road a lorry approached a small car travelling on the other road. Having no rule in driving except that of the "first man in" having the prior right, neither the lorry nor the car was able to pull up. One vehicle skidded on to the pavement and killed the medical man. Both drivers were arrested, and nobody knew whether either or neither was responsible for the accident. The right-hand rule would have required one of the drivers to account for his action in crossing the bows of the other vehicle; and had both drivers been aware of the rule probably no accident would have occurred. Both would have been careful of taking risks.

Before adopting a definite line of action it is well that every objection should be met. The right-hand rule so far has brought forth no objection except that of the so-called limiting case. With the increase of street accidents it is surely fair that some thought should be given to the proposal, some arguments—if they exist—adduced against its adoption. So strongly do I believe in the rule that I think the only sufferers from it would be the lawyers with fewer cases to defend, the motor repairers with fewer cars to mend, and the doctors with fewer patients to treat, and fewer policemen would be required to control traffic. The public, I am convinced, would gain in safety to life and limb.

ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER.

(*Continued from page 278.*)

PROPOSALS OF THE NATIONAL SOCIETY FOR LUNACY REFORM.

THE whole of the most recent sittings of the Royal Commission on Lunacy and Mental Disorder on February 9th and 10th was devoted to the further evidence of Mr. MONTGOMERY PARKER, chairman of the National Society for Lunacy Reform. The general submissions which Mr. Parker made to the Commission on behalf of his society were set out in the BRITISH MEDICAL JOURNAL of January 31st (p. 230), and the report of his evidence was continued in the issue of February 7th (p. 277).

Much of the discussion on this occasion related to alleged cruelty in mental institutions. Mr. Parker said that his society had numerous statements from patients which left no room for doubt that on many occasions physical violence took place. The reports of the Board of Control had a constant record of broken ribs and limbs, all of which were accounted for by the Board as resulting from accident, but when no such record was noted the Board claimed that the result was due to the care and kindness of the attendants. But to some extent what he called chemical violence had superseded physical violence, and the use of drugs as a punishment was infinitely harder to detect or prove. Dr. Hubert Bond had stated before the Commission that medical restraint was now largely substituted for mechanical restraint. Some explanation was called for as to the use of hyoscine, an injection of which was described by Dr. Stoddart, in *Mind and its Disorders*, as "a refined substitute for hitting the patient on the head with a club." The report of the Cobb Committee indicated that hyoscine was hardly ever used in certain asylums, but at Prestwich its consumption was heavy (60 tubes were bought in 1919-21, of which 39 were used). He went on to speak of the use of croton oil, the most painful and virulent purgative known. Of 22 hospitals selected by the Cobb Committee for investigation 2 showed large weekly doses, 3 showed smaller doses, and 17 used no croton oil. He begged the Commission to address a questionary to all mental institutior requiring a return of purchases during the last five years. His society had also evidence of systematic restriction of the use of latrines at stated times; this attempt—especially when purgatives had been administered—to regulate the functions of nature by written order and then to punish patients for want of cleanliness, reflected on the mentality of the administration.

On the question of punishment in general Mr. Parker said that he noticed a remarkable silence in the evidence so far given to the Commission. By a process of subtle suggestion one was left to infer that it formed no part of the asylum system. He admitted the necessity of maintaining discipline, but it appeared that in the absence of statutory provision all necessary action directed to this end was left in the hands of the medical staff. As a direct consequence, all the acts so common in the daily life of the sane, such as quarrels, slander, violence, assumed an exaggerated importance in the life of the insane, and instead of being judged on their merits and overlooked or dismissed with a suitable punishment, they went to swell the growing record of bad behaviour which prolonged the detention of the patient. The deplorable effects which must result from combining the functions of medical officer with those of judge and gaoler were self-evident. Punishment was always indefinite, "pending the doctor's pleasure," and this in itself was an irritating and depressing feature. Apparently it took one or more of three forms—loss of privileges; seclusion, generally with confinement to bed; and relegation to an inferior or refractory ward. His society submitted that the practices at present in force for maintaining discipline were in many cases cruel, and, difficult as the subject was, it was an urgent necessity that other means of maintaining discipline should be devised.

With regard to diet, there had been an improvement in recent years, which, the patients said, became apparent soon after Dr. Lomax's disclosures. In spite of official figures it was impossible to believe that bread and margarine for breakfast and the same diet for tea every day of the week was conducive to the restoration of physical and mental health, or that the absence of any food between 4.30 p.m. and breakfast next morning produced a standard of comfort to which the bulk of patients had been accustomed before they became paupers by law. It was admitted, however, that steps had been taken in some asylums to mitigate these conditions. Occupational treatment, again, was very deficient, the opportunities for congenial occupation being very limited.

Finally, Mr. Parker drew attention to the diversity of standards set up. The report of the Royal Commission of 1908 adopted the term "of unsound mind" as the sole criterion of lunacy, and defined a person of unsound mind as one "who requires care and control owing to disorder of the mind, and is consequently incapable of managing himself or his affairs." This was too vague a term by itself, and in the hands of a medical practitioner was a terrible menace to the liberty of the subject. The society submitted that conduct was the most valuable test of sanity, and that both the criteria adopted in the past by the law—namely, "the capacity to manage himself," and "the safety of the person and the public"—should be applied in all cases of certification; further, that where incapacity extended to a person's affairs only, the detention was not necessary if a receiver was appointed.

The Commission adjourned until February 24th.

Canada.

[FROM OUR OWN CORRESPONDENT.]

CANADIAN MEDICAL ASSOCIATION.

THE annual meeting of the Canadian Medical Association will be held in Regina, Saskatchewan, on June 22nd to 26th; the President-Elect is Dr. David Low of Regina. The business meetings of the council will be held on the first two days, and the remaining three will be devoted to the regular medical and surgical programme.

HOSPITAL ADMINISTRATION.

In October last the first annual convention of the Ontario Hospital Association met in Toronto at the Academy of Medicine; eighty or ninety hospitals sent representatives. Dr. J. J. Walters of Kitchener stated in his paper that in his opinion municipalities should pay the expenses of erecting hospitals so that there should not be the usual hospital deficits. One of the most important suggestions made at the meeting was that a central purchasing bureau should be established for the procuring of supplies at the lowest possible rate, an arrangement which I believe has worked well for the hospitals of London. One speaker considered that the hospital costs for private and semi-private patients (be it remembered that nearly all the hospitals in this country have private and semi-private wards and that nursing homes are uncommon) were far too high. He also disapproved very strongly of the action taken by the Workmen's Compensation Board in refusing to pay extra charges for the use of operating rooms, etc., for workmen treated in the hospitals. It was resolved to send a resolution to the Provincial Secretary protesting against this injustice.

ROTARY CLUBS AND CHARITABLE WORK.

In recent years Rotary clubs or similar organizations have been established in almost every city of the United States and Canada. The members consist, generally, of a representative from each of the learned professions and of the various forms of business enterprise. The members meet at luncheons and discuss various questions of interest to them all and learn each others' points of view. In a very praiseworthy manner these clubs undertake schemes of charitable work and carry them through with a right good will. A

great deal of good is done by them in this way. The Gyro Club of Calgary, for instance, has recently established and agreed to maintain a clinic for the infants and young children of the poor. The medical work is done by the Calgary Medical Society, aided by the nurses of the Victorian Order. There is a Rotary Club Tuberculosis Clinic in Vancouver, and in Montreal the Kiwanis Club has lately erected a pavilion for the Children's Memorial Hospital to afford additional space for the open-air treatment of surgical tuberculosis and other diseases. The Mystic Shriners, who I believe form a body within the Masonic Order, have also done much, in the same way, on a large scale and have financed the building of a children's hospital in Montreal.

Medical Students in Eastern Canada.

It may be of interest to give the numbers of students in some of the medical schools of Eastern Canada. At Queen's University, Kingston, Ontario, 254 are registered for the session 1924-25. These students are almost equally divided amongst the five years, but none will graduate this year, as the course has been lengthened from five to six years. The last class of the old five-year course obtained their degrees in May, 1924. At the University of Toronto 797 students (68 women and 729 men) are registered. Of these, seven students are seeking the diploma in public health, two the diploma in radiology, three the degree of Bachelor of Science (Med.), and three are doing post-graduate work. At McGill University, Montreal, the medical course lasts for five years, but before admission to the first year the student must have completed two years in a Faculty of Arts or its equivalent. In these two years chemistry (inorganic and organic) must have been studied for two years, and physics and biology each for one year. The total number of students registered for the five years is 490, including a small proportion of women.

Amalgamation of Medical Journals.

The *Canada Lancet*, founded in 1866, and the *Canadian Practitioner*, established in 1875, both in Toronto, have been combined under the name of the *Canada Lancet and Practitioner*, the first number of which appeared in January. These journals formerly reflected the opinions of the two medical schools—Trinity Medical School and the Toronto School of Medicine. These schools were amalgamated several years ago, so it is very fitting that their publications should combine. The editorial board, largely composed of those on the staff of the old journals, is a strong one. Problems of preventive medicine and of the various branches of hygiene, rather than those of general medicine, will be treated in this journal. The veteran Dr. Adam H. Wright is one of the editors, but his companion in the *Practitioner*, Dr. W. H. B. Aikins of Toronto, who died last October, at the age of 65, will be sadly missed. Dr. Aikins came of a family many of the members of which distinguished themselves in their various callings. He was educated in Toronto at Upper Canada College, and graduated in medicine there; later he studied in New York, the British Isles, and Europe. He was an active worker in the various medical associations in Canada and acted as secretary for Canada at the International Medical Congresses held in Lisbon, Budapest, and London. He was one of the first here to recognize the value of radium in medicine, and at one time was president of the American Radium Society.

Canadian National Committee for Mental Hygiene.

Six years ago the Canadian National Committee for Mental Hygiene was formed, and its annual meeting was held at Montreal on November 14th, 1924. At the meeting of the board of directors it was decided to devote 30,000 dollars a year for five years to research studies, particularly in Toronto and Montreal. An energetic educational programme will also be carried out. Her Excellency Lady Byng of Vimy early identified herself with the work, and the Lady Byng of Vimy Fund has now reached the sum of 275,000 dollars, 200,000 dollars being subscribed by Canadian citizens and 75,000 dollars generously given by the Rockefeller Foundation.

At the general meeting open to the public the President, Dr. Charles F. Martin, outlined the work already done, which included raising the standard of treatment and care of those who are mentally abnormal, the institution of preventive measures, the stimulating of universities to greater interest in educating teachers, students, social workers, and the public generally, and the introduction of the principles of mental hygiene into schools, reformatories, gaols, hospitals, and courts. He said that the Government had been educated in the importance of all these problems, and improved methods of immigration had been introduced by insisting upon better examination of those entering Canada. Most important was the formation in the secondary schools of classes for the mentally defective. Mr. E. R. Embree, secretary of the Rockefeller Foundation, spoke of what could be done in the future by the study of feeble-mindedness, especially in the child. Sir Arthur Currie, Principal of McGill University, said that the University was doing all it could to forward the movement, and that several members of its staff were investigating the problems of mental hygiene, their work being supported partly from the funds of the University and partly by funds allocated by the Committee. Dr. C. F. Martin was re-elected president, and Dr. C. M. Hincks was elected the medical director.

India.

Indian Leprosy Campaign.

The Viceroy, Lord Reading, has appealed for funds to provide the Indian Council of the British Empire Leprosy Relief Association with the means to organize an attack on leprosy with a view to its elimination. In a speech on January 27th he laid emphasis on the need for research, the establishment of out-patient clinics, and improvements in leper institutions. A strong general committee for the whole of India has been appointed under the chairmanship of Sir Frederick Whyte, and generous support by the newspapers and the people generally appears assured.

Treatment of Rabies at Lahore and in Western India.

It is announced that antirabic treatment is now available at the Punjab Bacteriological Laboratory in Lahore throughout the year, of a similar kind to that given at the Pasteur Institute at Kasauli, Coonoor, and Shillong. The course of treatment ordinarily lasts about a fortnight, during which the patients are confined to bed. No in-patients are received at the laboratory, but any in a serious state of health, as a result of wounds or other causes, can be treated in the Mayo Hospital, Lahore. The antirabic treatment is given free, and railway concessions are granted to Government servants and necessitous patients unconnected with Government service. The agent to the Governor-General in the States of Western India has issued a notification that from January 8th a centre for antirabic treatment will be opened at the West Hospital, Rajkot. The need for this has long been felt in view of the many cases of disease occurring in Kathiawar. Until the opening of the rather nearer station at Ahmedabad patients were required to travel to such distant treatment centres as Kasauli.

Punjab School of Medicine for Women.

The new maternity block of the Memorial Hospital for Women and Children, Ludhiana, which is connected with the Women's Christian Medical College and the Punjab School of Medicine for Women, was opened recently by Lady Hailey. The principal of the college, Dr. Edith Brown, explained that a gift of 80,000 rupees from the Punjab Government had made the building of this new block possible. The addition provides seven private wards and three free wards, accommodating altogether twenty-four patients. During last year the in-patients numbered over 2,000, and more than 78,000 visits were paid by out-patients. Patients came not only from the Punjab but from all parts of India, and some even from Burma, Persia, and Africa. The hospital and college trained Indian women as doctors, nurses, compounders, and midwives for the whole of the Punjab, and for other parts of India.

Since 1900 134 medical practitioners, 100 nurses, and many compounders and midwives have received their education in the college.

BURMESE INSTITUTE OF PUBLIC HEALTH.

The Governor of Burma, when laying the foundation stone of the Burmese Institute of Public Health, dwelt on the urgent need of a progressive public health policy. Hitherto, he said, the advantages of preventive medicine had been insufficiently appreciated in Burma, even though the majority of the population showed signs of a strong natural inclination towards personal hygiene and cleanliness in the home; with the expansion of this existing interest in personal hygiene into community hygiene, the way for a great advance in public health would be prepared. The new institute will provide a training school for the public health service, a provincial public health laboratory, and an institute for research in public health problems. Moreover, it is proposed that the institute shall serve as a centre for the dissemination of instruction in health matters, and as a meeting place for the various societies interested in public health propaganda. The institute will also help in obtaining for Burma the much needed legislation with regard to adulteration of food and drugs. The Governor referred to the recent formation of a public health advisory board for Burma, and to the steps taken to combat venereal disease and leprosy, both very prevalent in the country. He added that a medical committee was at present engaged in investigating the conditions of leper asylums with a view to improving their administration and the treatment of the disease.

Ireland.

FREE STATE MEDICAL BILL PASSED THROUGH FINAL STAGES.

THE Senate of the Irish Free State considered last week the committee stage of the Medical Bill (1924), which provides for the continuance of the existing arrangements for medical registration. Mr. P. McGilligan (National University), Minister for Industry and Commerce, said the bill was only a temporary measure, covering a period of twelve months. The object of the bill was to enable Irish medical practitioners to have their names inserted on the British *Medical Register*. The delay in connexion with the bill was due to prolonged negotiations between the British and Irish Governments in reference to some points in dispute. It was decided and agreed that legislation should be introduced both in Dublin and at Westminster. That legislation would not be identical. He had recently received two intimations—one from the Irish Medical Council, that it desired that the Irish bill should become law before February 23rd; the other communication was from the British Colonial Office, to the effect that the point that had been in dispute was no longer in dispute. In the circumstances he felt it was necessary and right to meet for the purpose of getting the bill passed, so that it would become law on February 23rd. Senator Dr. Gogarty said that the sooner the position of the medical profession was defined and legalized the better. Behind the whole matter lay the question whether or not the medical profession in Ireland, and those entering it, should have the right to practise in any part of the British Empire. When the contribution that Ireland had made to the empire was considered, it was not a matter of "saving faces," but a matter of asserting a right. If the bill were not rapidly put through the Oireachtas, Free State medical students would be no longer entitled to exercise freely their rights in the British Empire. If they did not have that right it would mean debasing the degrees of Irish colleges and the closing of them eventually. The ordinary wear and tear of the profession in the Irish Free State depleted the ranks by about twenty every year, whereas the medical institutions turned out about 150 qualified men every year.

The bill passed through all its stages, and now only awaits the signature of the Governor-General. The bill authorizes the General Medical Council to continue temporarily to exercise authority in respect of medical practitioners in the Irish Free State. Persons registered under the Medical Acts are, in the Saorstat, to have the same rights, privileges, and immunities, and be subject to the same obligations as in Ireland before the Saorstat came into existence. The General Medical Council is to have, in relation to persons and matters in the Saorstat, all the old powers, jurisdictions, and authorities; the Branch Council for Ireland will similarly retain its powers; the General Council and the Branch Council will continue to be constituted and elected as before; and universities and medical corporations in the Saorstat continue to have powers of granting diplomas and holding qualifying examinations under the Medical Acts.

Scotland.

GLASGOW ROYAL INFIRMARY: SUGGESTED EXTENSIONS.

AT the annual general meeting of the Glasgow Royal Infirmary Lord Provost Montgomery presided and moved the adoption of the annual report. Mr. James Macfarlane, LL.D., chairman of the board, stated that the subject of greatest concern to the managers was the congestion of wards and the long list of patients waiting admission. As this affected hospitals throughout the country, it was really a matter of national importance and urgency. There had been a suggestion that another infirmary should be added to the three already in existence in Glasgow, but in his opinion before this was carried out care should be taken to see that the fullest advantage was taken of those already in existence. He would therefore suggest that the present pressure could be relieved, in the first place, by the erection of an auxiliary or convalescent hospital outside the city to which cases might be removed after short treatment in the general hospitals. Secondly, he thought a fully equipped nursing home should be established for the accommodation and treatment of patients who could pay the charge necessary to cover the cost of running the home although they could not afford the expense of an ordinary nursing home. Professor Glaister, who moved a vote of thanks to the medical and surgical staffs, also stated his opinion that there was clamant need for the institution of a nursing home situated in the open country which could relieve the pressure on the wards at the Royal Infirmary by the transfer to it of patients after the critical period of their illness had passed. In the annual report it was stated that 13,969 patients had been treated in the wards during the past year, an increase of 1,210 on the figures of the previous year. The daily average number of patients was 726.6, and the average period of residence nineteen days. In the out-patient department 51,954 patients had been treated, an increase of 3,261 as compared with the previous year; the total number of attendances had been 236,570, as compared with 220,193 in the previous year. At the Ophthalmic Institution connected with the hospital 919 in-patients and 15,424 out-patients had been treated. Mention was made of the prospective formation in the infirmary of a new biochemical department for investigation and research in relation to disease, towards the expense of which donations had been given of £5,000 by the executors of the late Dr. F. H. Clarke, Dumfries, and £500 from the executors of the late Mr. F. L. O. Rottenburg. The ordinary expenditure had been £110,194 and the ordinary revenue £85,189. An exceptional sum of £100,143 had been derived during the past year from legacies, and this sum had been drawn upon to meet the deficit on ordinary expenditure as well as to provide for the extraordinary expenditure of £3,739. Out of the surplus £30,000 will be devoted to the reconstruction fund. Mr. D. Bruce Warren, son of the retiring treasurer, was appointed honorary treasurer in succession to Mr. Timothy Warren, who had held this position for twenty-five years.

EDUCATIONAL PROGRESS IN VETERINARY SCIENCE.

At a meeting of the Scottish division of the National Veterinary Medical Association held at the Royal (Dick) Veterinary College, Edinburgh, Principal Charnock Bradley, who presided, delivered an address. He said that the war had very clearly demonstrated the national value of veterinary science in times of peace. The eyes of the public had

been opened to the bearing which land cultivation and animal husbandry had upon national well-being. There was an increasing number of members of the veterinary profession who did not follow general practice, and the schools now offered facilities for specialized training and for those seeking official appointments. The last sixteen or twenty years had seen advances greater than any that had occurred since veterinary education was first established in Great Britain. Real education had been made more natural and the student was asked to verify facts for himself, so far as circumstances permitted, and not merely to listen. This, however, could not be effected with the institutional equipment formerly provided. The institution of post-graduate distinctions, such as university degrees and diplomas of veterinary State medicine, would exert a growing influence upon the veterinary profession as a whole, and slowly but surely the time was coming when the possession of post-graduate distinctions would be indispensable for candidates for appointments. The primary duty of an institution like a medical or veterinary school was so to train students as to make them proficient in a professional capacity, but the medical or veterinary school ought to do more. No profession could afford to rest solely on the professional performances of its members, and it must be impressed upon the public that the profession had an atmosphere and a dignity as well as an achievement.

England and Wales.

WEST LONDON HOSPITAL EXTENSION.

ON February 10th Princess Mary opened a new wing at the West London Hospital, Hammersmith. The chairman of the hospital, Mr. Reginald E. Watson, announced that this addition provided a further 60 beds, bringing the number now available up to 220. The new accident ward contained 16 beds, and, in addition to two cancer wards containing 7 beds, and two new operating theatres, a block of twenty private rooms has been erected to accommodate twenty-two paying patients. The whole of the new wing was opened entirely free of debt, money for the cancer wards having been provided by Mrs. Hull Martin, whilst Mr. Dan Mason had contributed £20,000 and the cost of the equipment of the private wards. In the course of the ceremony the Countess of Ilchester presented a cheque for £1,100, on behalf of the Ladies' Association, to endow the Princess Mary bed in the Hull Martin ward. It was announced that a second bed in the ward had been endowed by Mr. Charles Pascall.

PUBLIC HEALTH IN LIVERPOOL.

At a meeting of the Liverpool Medical Institution on February 12th, Dr. E. W. Hope gave an account of the sanitary advances of Liverpool and of the measures taken to ameliorate the conditions resulting from the singularly rapid growth of the city at a time when sanitation was very imperfectly understood and when no legislative powers existed to check or remove the rapidly growing evils. Much of the earlier local legislation had formed the basis of the Public Health Acts of the country, but the sanitary needs of Liverpool had made necessary many applications to Parliament. The great housing operations, both within the city and in its outskirts, were illustrated, as well as the measures which led to the present unstinted supply of water, transported from the purest sources sixty miles away. It was available for delivery to every floor in every house at the moderate cost of 1½d. a ton. The steps which led to the establishment of the present efficient hospital and sanatorium system were traced, and it was pointed out that the term "infectious hospital," as applied to properly spaced institutions upon an area of some 200 acres, had a very different significance from that applied to hospitals of half a century ago. A description was also given of the development of the individual as well as of his environment. Hygiene, the uses of health visitors, ante-natal and post-natal centres, maternity homes, infant welfare centres, control of food supplies, and other important accessories were dealt with. With a view to making sanitary problems intelligible and interesting to the general public the University School of Hygiene had been established.

MANCHESTER ROYAL INFIRMARY.

At the annual meeting, on February 13th, of the Manchester Royal Infirmary attention was drawn to the present rather anxious financial position. The deficit for 1924 was £24,147, compared with £12,300 in the previous year. The combined income of the infirmary and the Barnes Convalescent Hospital during 1924 was £87,000, as compared with £85,000 in 1923; whereas the expenditure in 1924 was £113,011, compared with £108,894 in 1923. The total number of patients treated has decreased from 61,932 in 1923 to 54,734 in the year under review; but a striking feature of the report is the steady increase in the number of casualties treated in the accident rooms, though not admitted as in-patients. This number has increased from 18,000 in 1921 to 24,000 in 1924. The annual report of the board includes a statement of the desirability of increasing the number of nurses as soon as may be possible, so that the present working hours of sixty-three a week for those engaged on day work, and seventy-three for those engaged on night duty, may be reduced to an all-round week of fifty-six hours. For this purpose extra accommodation is required for seventy additional probationers and thirty maidservants. Accommodation is also necessary for the massage school, which is at present housed in temporary premises. The cost of this additional housing will amount to £50,000 at least; and the board feels that adequate funds ought to be raised for the large extra annual expenditure.

L.C.C. SLUM CLEARANCE SCHEMES.

The latest addition to the housing programme which the London County Council has undertaken, involving the displacement and rehousing of 2,700 persons in the Ossulston Street area of St. Pancras, was referred to in a leading article in our last issue (p. 320). The programme of the Council now embraces slum clearance schemes in nineteen areas, situated in eleven boroughs, but chiefly in Southwark, Shoreditch, and Stepney. The total area to be cleared is 88 acres, the number of persons who have already been or will be displaced is 25,168, and of these the Council is under an obligation to rehouse 23,000. The total estimated cost of the clearance and roadwork, not including the provision of the rehousing accommodation, is £1,145,200. The Council has also in hand a number of building schemes at Becontree, Downham, Roehampton, Hendon, and elsewhere. The number of houses still to be erected under these schemes, and for which specific provision has been made in the estimates, is 12,194, all for letting at weekly rents.

TRAINING OF HEALTH VISITORS.

Brief mention was made in our last issue of a memorandum[1] issued by the Ministry of Health giving details of the grants to be made for the training of health visitors in connexion with the decision that, after April 1st, 1928, no first appointment as a whole-time officer of a local authority, with health visiting duties, will be made unless the candidate has obtained a certificate from a recognized central examination body. For the purpose of the grant it has been decided to approve, in the case of a trained nurse, a whole-time course of training in public health work lasting for a minimum period of six months, and normally covering two academic terms. Students who are not trained nurses may be approved for the payment of a grant if they are undertaking a course of two years' duration, together with six months' training in a hospital, and are seeking the certificate of the Central Midwives Board. The position of existing health visitors ought, it is stated, to be fully safeguarded, but it is hoped that these will take steps to obtain the new certificate, and will receive encouragement and assistance in this endeavour from their local authorities. The Minister of Health announces that he is prepared to approve the payment by local authorities of the reasonable expenses incurred by health visitors in attending whole-time "refresher" courses lasting from two to four weeks, and designed to afford additional practical and theoretical knowledge. It is hoped that such courses will be organized in London and other large centres. Grants will be payable at a rate not exceeding £15 for each duly qualified student who has completed the six months' course, and at the rate of £20 for each year of training for those who have completed the longer course.

[1] Memo. 101/M.C.W. London: H.M. Stationery Office. Price 1d. net.

Correspondence.

LIME JUICE AND LEMON JUICE FOR PREVENTION OF SCURVY.

SIR,—In the old days of sailing ships with voyages of long duration the danger of scurvy was much greater than it is now; little was generally known of the etiology of the disease, and catering difficulties were much more marked. Dr. Lind and Sir Gilbert Blane, the pioneers of naval hygiene, were both very active in studying this scourge of the navy and endeavouring to eradicate it. Fresh fruit, lemon or orange juice, with vegetables as prophylactic and curative agents for scurvy, had been used by the Dutch as far back as 1564, and had been successfully employed by Sir Robert Hawkins in 1600, but their use had been more or less forgotten until Dr. Lind insisted on their value. His *Treatise on Scurvy* was published in 1754. In 1757 Lind's friend Mr. Ives, the surgeon to the squadron, induced Admiral Watson to provide the ships in the East Indies with an ample supply of lemon juice. Lind, however, recommended *preserved* juice on long voyages. The fresh juice was concentrated by heat to a thick syrup; as this was done in glazed earthenware vessels soluble lead salts were found, and Lind drew attention to this danger as "death in the pot." Trotter strongly opposed the use of this form of preserved juice, as it was said to undergo fermentation and become mouldy. It was Gilbert Blane's teaching and powerful influence which brought Lind's recommendation into use, for in 1796, when Blane was one of the Commissioners of the Navy Board, the use of lemon juice was ordered as an essential part of the naval dietary; this quickly resulted in the practical disappearance of scurvy from the service afloat. In 1782 two-thirds of an ounce of lemon juice a man a day protected the whole ship's company of H.M.S. *Suffolk* during a voyage of twenty-three weeks without touching port. In a discussion on the probable cause of this disease, which he attributed to "the lack of a certain element which is necessary for growth and repair," Blane foreshadowed the present deficiency theory.

From that time to the present so-called lime juice has been a standing ration, but its efficacy has disappeared. The reason for this has been ably shown by Mrs. Alice Henderson Smith. As originally prepared the lime juice was made from sweet limes (*Citrus medica*), with lemons imported chiefly from Spain. In 1793 war stopped these supplies, but in 1802 delivery was resumed, and scurvy, which had obtained a temporary hold, was again almost eliminated. About 1860, by the development of the cultivation of limes in the West Indies, a large quantity was made available, and the contracts entered into for the navy caused these, the sour lime (*Citrus medica*, var. *acida*), to supersede the sweet limes and lemons formerly in use, and for a time this new lime juice was believed to be better than the old. In Ross's polar expedition the original lemon juice had been used, but Sir G. Nares in 1875 was provided with the new West Indian lime juice. The former escaped scurvy, the latter suffered severely, thus demonstrating the failure of the new preparation as a prophylactic. The sister ship in the latter expedition, the *Investigator*, was supplied with lemon juice, and for twenty-seven months after leaving home she had few cases of scurvy, though the crew suffered great hardships.

The clinical evidence is clear that lemon juice is far more effective than lime juice in preventing scurvy, and this has been fully confirmed by a large number of laboratory experiments, carried out at the Lister Institute, at Greenwich, and elsewhere, which have determined the exact relative values. Recent history has shown that during the war scurvy was prevalent in Mesopotamia, Serbia, Russia, and Eastern Europe, and much has been written on the subject. In the Persian Gulf naval crews frequently develop a form of scurvy which is cured by issue of fresh fruit.

Recognizing that the necessary antiscorbutic could not be supplied by the preserved lime juice from West Indian sources as at present made, I endeavoured to provide an efficient, portable, and palatable substitute for the use of special ships and for such expeditions as those for polar exploration. The experiments were carried out at Greenwich on guinea-pigs, which are extremely susceptible to the disease. Lemon juice was evaporated at room temperature *in vacuo*, and then made into tablets with sugar of milk. Each tablet contained the equivalent of half a lemon, and was protective even after a year's storage.[1]

Dried orange juice, which has practically the same antiscorbutic value as lemon juice, has been largely employed by Givens and McClugage, who found that it retained its protective power for a considerable time, but in these preparations a certain amount of heat is used, which diminishes the efficiency of the product. Zilva, of the Lister Institute, found that when evaporated down and kept anaerobically the antiscorbutic properties are retained for a long while. The use of concentrated lemon or orange juice has thus been found effective in animals, and we may with confidence apply its use to man under conditions of service which preclude the regular provision of fresh fruit and other well known preventive substances. For general service, when large quantities are required, the *unheated* concentrated syrup, as obtained before being mixed with lactose, might be kept in bottles, and the equivalent of 24 c.cm. of fresh lemon juice be given to each man, after solution in water to which sugar has been added at the time of issue. This acid viscid syrup keeps well, as moulds will not grow on it—an important fact to note. The Admiralty are fully aware that the lime juice is a non-effective scorbutic, and it is only issued as an agreeable beverage; but nothing else is at present supplied as an antiscorbutic. —I am, etc.,

London, S.E.3, Feb. 15th. P. W. BASSETT-SMITH.

THE RURAL PRACTITIONER AND MATERNITY.

SIR,—It appears from a letter by Dr. T. H. C. Stevenson in your issue of January 24th (p. 191) that he has suggested that there was an increase in puerperal sepsis during four years after the war, owing to more women being attended in their confinements by medical men.

Perhaps my own experience in an average practice during those years may throw some light on the question. In the first place, I totally disbelieve that more women were attended by doctors than previously; quite the other way round—during the war years there was plenty of money, and in consequence more were attended by medical men. However, what is certain is that during those years there was an extensive prevalence of virulent influenza. In two cases full-time women died directly from broncho-pneumonia—one died undelivered, and the other a few days after delivery. Five pregnant women died from influenzal pneumonia, all of whom miscarried before death, in each case the symptoms becoming hopeless in about twenty-four hours after delivery. On several occasions I have had difficulty, when called in by a midwife, in deciding whether the pneumonia was due to sepsis or to influenza. Many cases of influenzal pneumonia must have been certified as puerperal fever. I knew one case where a woman was curetted by a specialist and was afterwards found to be suffering from pleurisy, which cleared up after the fluid had been drawn off.

In my practice there was an epidemic of puerperal sepsis in the cases of a midwife—a clean and good nurse—and I hesitate to say how many of her cases I attended and how many died. Not only so, but in some cases she attended for a neighbouring practitioner and the same result was observed. This medical man tells me that she never examined in some of the cases, the fatal infection being apparently conveyed by the infection of the diapers—droplet infection, I presume. The one thing certain about the source was the fact that she had contracted ozaena, perhaps after influenza. In many midwifery books an epidemic in the practice of a medical man in New York, of a similar nature, is quoted. Is it not time that salicylic acid absorbent wool should be used for diapers, or some similar antiseptic material?

The practice of midwifery has improved amongst the rank and file of the profession, as it has in the hospitals: then

[1] See Report War Section, Royal Society of Medicine, 1920, vol. xiii, pp. 51-69, read May 10th, 1920.

why this bitterness? We use forceps much less frequently, although our patients occasionally still bully us into applying them before they are theoretically required. Pituitrin saves many forceps cases, and is a most valuable improvement, if not altogether without risk. Scopolamine and morphine soothes many a hysterical patient over a long and painful first stage; like forceps, if used wholesale, it would, in my opinion, slightly raise the death rate; none the less it is an improvement we should not care to be without, and invaluable in its place. We use gloves instead of the naked hand; we use anal examinations to finish up after a careful abdominal palpation, and only examine per vaginam when in doubt or when interference is required; we examine the pelvis of our patients carefully at the sixth or seventh month, and if necessary induce labour four weeks before the date of the confinement. The progress is immense, and will continue: bitter criticism is uncalled for. We lag behind the specialist a little, as is unavoidable, but not so much as formerly. Of course, the specialist sees our mistakes and not our successes. Twenty-three years ago, whilst doing locumtenent work up and down the country, I was impressed with the skill of the general practitioner, and I am sure that the general improvement since then is immeasurable.

Pre-natal clinics and all similar institutions should be staffed by the general practitioners of the neighbourhood, and the specialist used for consultation or supervision; otherwise much valuable clinical material is perforce stolen from the most deserving branch of the profession. In the same way, cottage hospitals should be established in every parish, so that the necessary facilities for the practice of modern medicine might be within the reach of all. Workhouse hospitals and all other hospitals, with the exception of the big teaching hospitals, should similarly be thrown open to the general practitioners of the neighbourhood. This is particularly important in the case of the junior practitioner waiting for his practice to grow; not so important, perhaps, in the case of the elderly man, who has already gained his experience and built up his practice.

In conclusion, I would say that any medical man who is called out to midwives' cases, and sees again and again women dying and beyond help for the lack of more skilled knowledge promptly applied, must know that every woman requires the assistance of a fully qualified medical practitioner at her confinement. This is so, not only in cases of haemorrhage, adherent placenta, concealed haemorrhage, placenta praevia, face presentations, transverse and breech, twins, and so on, but because we are an unhealthy and unnaturally living generation, full of all sorts of ailments that render us liable to sudden death in the most unexpected manner. As the perfect is not always obtainable (and sometimes, perhaps, not even desirable: fanaticism is rife, and is itself a danger), he should see her at least before delivery and should be available quickly when required. It is unnecessary to enumerate all the medical and surgical complications that render this so desirable.—I am, etc.,

Wallasey, Jan. 25th. F. WILLIAM INMAN.

CANCER IN AFRICAN NATIVES.

SIR,—Dr. J. Bell Walker has kindly sent me Dr. Charles F. Harford's remarks in the BRITISH MEDICAL JOURNAL of November 8th, 1924 (p. 884). These, and Dr. Leitch's that he quotes, diverge from my points. My cases of malignant disease (BRITISH MEDICAL JOURNAL, 1924, vol. ii, p. 689) were all living the old primitive native life, with years varying between famine and plenty. I take it that in every case there is an abnormal local factor; in sarcoma, perhaps, a blow had concentrated the unconscious mind on the spot. In carcinoma everybody admits the local irritant. Increased introspection would be favourable in a native. Why should an animal need an intellect to favour abnormal unconscious action? Perhaps the law of correlation has a bearing on the causation. We need the practical help of the psycho-analyst. As in the case of delusions and obsessions, a special sector of the unconscious mind is probably at work. In a case of bad suggestion in a human being the conscious and unconscious minds would both be specially directed to an unhealthy spot in their system. I reason the causation, therefore, as follows: (1) a local, chronic, unhealthy irritation; (2) concentration of the unconscious mind on the spot; (3) this sector transmitting its vital action—electric or whatever it is proved to be—thus being responsible for the malignant cell changes at the site. Let hospitals and experts come to the rescue.

May I mention the following example, as the result of environment governed by the law of correlation, in my view? I have seen very many reedbuck in Nyasaland (natural colour a brownish-grey), but, omitting albinism and one instance of a light rufous colour, I know of three cases of a silver-coloured reedbuck, and those from one place only. I think one each were shot by Major Grogan and Mr. de Fries, and one by myself (now mounted). Other parts, normally dark, remained so. Antelope, at the place in question, could often be seen grazing amongst native cattle. It was an open grassy place with a good many pools. In the wet season more shallow ones were formed. I submit that the silver-grey colour was developed *in utero* to match the bright sun-reflection on these waters, and render invisible at a distance.—I am, etc.,

Limbi, Nyasaland, Dec. 12th, 1924. J. E. S. OLD.

MYELOID LEUKAEMIA ENDING AS LYMPHATIC LEUKAEMIA.

SIR,—The case recorded by Dr. Walter Broadbent under the above title (BRITISH MEDICAL JOURNAL, February 14th, 1925, p. 306) is more probably an instance of an acute myeloblastic termination, a recognized ending of chronic myeloid leukaemia. Before the output of myeloblasts takes place the number of leucocytes has usually fallen very low—for example, to 3,000 or 1,500 per c.mm.—and the occurrence suggests exhaustion of the bone marrow.

The initial number of leucocytes in Dr. Broadbent's case was high—892,000 per c.mm.—and *x*-ray treatment was continued until the figure fell to 11,600. When a reduction is taking place it often continues for some time after *x*-ray treatment is discontinued, and when the initial number is large, as in this case, it is advisable to stop the treatment when the count is between 30,000 and 50,000. Otherwise the liability to this sudden ending is considered to be increased.—I am, etc.,

London, W.1, Feb. 17th. H. LETHEBY TIDY.

REX *v.* BATEMAN.

SIR,—The public as well as members of the profession are to be heartily congratulated on the quashing of the sentence passed upon Bateman at a recent trial: the public, because the confidence placed in the doctors will be reinstated; and the profession, because members will feel it is, as it has always been, their duty to act courageously, with the skill they are capable of and the knowledge they possess, knowing full well their action will receive the support of right-minded men. Bateman is also to be congratulated because he has not been sacrificed in vain. His trial has awakened a sense of right and of justice in his professional brethren, which will amount in the course of time to far greater value than any compensation that could be given him.

The trial has in addition made us consider, Where do we stand? In this as in other trials for criminal negligence in the conduct of cases, it has hitherto been possible to find two camps of doctors—one for and the other against.

The facts elicited in these cases are alike for both sides; but there is always room for speculation on their interpretation. The final interpretation of all the facts brought out lies with the judge. As interpretation of technical facts is difficult, even to the man of special knowledge, experience, and skill, it would, it seems to me, be advantageous in the administration of justice if the judge were able to consult during the proceedings with someone capable of giving him real assistance in medical matters.

Is it not possible to arouse doctors to ask for the principle adopted in the Workmen's Compensation Act to be applied in such cases as Rex *v.* Bateman? If that were granted assessors for this purpose should be independent of external influence, else they would prove worse than useless. The presidents of the various medical corporations would be, I think, fitting persons to select an assessor in medicine,

in surgery, in obstetrics, or in the science of drugs, as the case may be.

No doubt it is a source of satisfaction that Bateman retains his professional position, and that his name will remain on the *Medical Register* and, if he so desires, on the roll of the panel of doctors under the National Insurance Act.—I am, etc.,

Cambridge, Feb. 16th. JOSEPH GRIFFITHS.

PULMONARY TUBERCULOSIS TREATED BY SPAHLINGER'S SERUM.

SIR,—Most of the tuberculosis workers with whom I have discussed the value of Spahlinger's serum are sceptical of its value, for a variety of reasons, and the information given under the above heading in your issues of January 3rd and February 7th does not tend to dispel this feeling.

In the JOURNAL of January 3rd (p. 43) we are told that a case of pulmonary tuberculosis with such extensive disease and such grave symptoms that the condition of the patient was "wellnigh hopeless" was treated first with Spahlinger's serum in Geneva on August 1st, 1924, and that ten weeks later (that is, October 10th, 1924) the disease seemed to be "completely arrested." Like your correspondent of January 10th (Dr. J. M. Johnston), I marvelled at the radiograms and should have welcomed the information he suggested.

On February 7th (p. 277), however, you were able to publish a further report under the same title, showing that the man died on November 3rd, 1924, and a letter is published, in which M. Spahlinger is said to attribute the cause of death to "typical pneumonia."

Now "typical pneumonia" conveys the impression of acute lobar pneumonia of pneumococcal origin, and the inference from the whole letter would seem to me to be that death was not due in any way to pulmonary tuberculosis. This impression of mine may be wrong, but I should be glad to know what others think. The further information which you publish in the same article puts a different complexion on the affair. It is there shown that the case of pulmonary tuberculosis which was "arrested" on October 10th, 1924, had a copious pulmonary haemorrhage on October 25th, 1924, developed "pneumonia" on October 27th, and died on November 3rd, 1924.

Whether pneumococci were or were not found in the sputum at the last illness, no one can doubt reasonably that the cause of death was bronchopneumonia following pulmonary haemorrhage due to pulmonary tuberculosis; and it seems to me that when M. Spahlinger wrote as to the termination of the case he either was not in possession of all the facts or did not appreciate the need for a complete statement.—I am, etc.,

CECIL G. R. GOODWIN.

Newcastle-upon-Tyne Sanatorium, Barrasford, Northumberland, Feb. 8th.

CANCER OF THE OESOPHAGUS.

SIR,—Sir Charters Symonds (February 14th, p. 330), referring to Mr. Souttar's introduction of spiral wire intubation funnels in lieu of gum-elastic ones, restricts their use to those familiar with the oesophagoscope, and mentions that this will set a limit to their application—an opinion with which all will agree. On the other hand, he states that "the elastic tube can be introduced after a little experience, and has been used somewhat extensively by a number of surgeons." Again, that malignant obstruction of the lower end of the oesophagus can "usually be traversed by a coudé bougie, or feeding tube when the straight variety cannot be passed"; and that "once such a tube can be passed and retained for three or four days, then the thin-walled rubber tube carrying the silver wire suggested by Dr. Hill can *easily be inserted* and worn indefinitely" (the italics are mine).

Surely Sir Charters Symonds does not advise—in these endoscopic days—the blind insertion of an intubation tube or a funnel in a malignant stricture of the oesophagus, in the haphazard way in which it has been used in the past?

So far as Dr. William Hill's intubation tube is concerned—and I have had considerable experience in its use—the designer introduced it with the same restrictions as Sir Charters Symonds has placed on Mr. Souttar's tubes—namely, for perendoscopic use only, and for those skilled in endoscopic procedures.

It is admitted that the danger of perforation, especially in certain cases of tortuous cicatricial varieties of cancerous growths, is real, even in the hands of the most experienced endoscopists. Surely such a catastrophe is more likely to occur after the blind passage of a bougie or other appliance.—I am, etc.,

London, Feb. 16th. IRWIN MOORE.

WHOLE-TIME MEDICAL OFFICERS.

SIR,—If Major Heffernan will do me the honour of re-reading my letter as a whole his alarm will be allayed. He will then see that the sentence which he quoted as indicating the policy of a particular hospital was merely the statement of a hypothetical case put forward during the course of an argument.

The reasons for the conclusion drawn in that sentence were set out in the two preceding paragraphs, and he will perhaps forgive me for thinking that as a scientific man he would have been better employed in a critical examination of those reasons than in turning over the pages of the *Medical Directory* in search of irrelevant material.—I am, etc.,

Sheffield, Feb. 14th. A. E. NAISH.

ISOLATION HOSPITALS FOR SCARLET FEVER.

SIR,—"Life is not designed," said Robert Louis Stevenson, "to minister to a man's vanity. . . . It is a friendly process of detachment. When the time comes that he should go, there need be few illusions left about himself. *Here lies one who meant well, tried a little, failed much*—surely that may be his epitaph."

His word fits the broad tombstone of humanity, but it sits with peculiar felicity upon the graves of physicians. Life for them is a procession of disappointments aggravated by the circulars of credulous chemists. It is a poor day that brings no flattering promise, a bright night that has seen no disillusionment. They hope so much, persist so patiently, and achieve so little.

In the current JOURNAL Dr. H. Cameron Kidd's letter on isolation hospitals (February 14th, p. 332) drives home the point. Just two short weeks ago you recorded Dr. W. Robertson's tale of "a series of 200 consecutive cases of scarlet fever treated in their own homes in Leith, the largest proportion of which were working men's dwellings, and among which not a single instance of spread of infection took place"—a plea for the Milne method of treatment. Dr. Robertson is now M.O.H. for Edinburgh. One hoped that his word from such a city might carry the method into the therapeutic position it ought by right to occupy.

Instead comes a call for "more stately mansions" in the isolation camp. Thus the "friendly process of detachment" goes on. Yet after thirty years of general practice I recall, amid ventures, advances, failures, no measure in treatment which has so consistently fulfilled expectation. I do not say that scarlet fever handled thus is never fatal, never severe, never complicated; but I am convinced that by this method the majority of cases run a milder, safer course. And there is never any infection. That is certain. Isolation becomes unnecessary. General recognition of the fact would mean an immense economy to these islands.

Have isolation hospitals had so much credit from their scarlet fever patients that more money should be spent on them? Scientific precision is never within reach of the system. At the end of a dangerous and expensive seclusion the patient returns to society a potential risk to his fellow creatures. How real the risk is we learn too often. And always the scarlet fever hospital is itself a menace to the community—parents, friends, nurses even, spread infection from it. Doctors and staffs do their best, and these reflections are not directed at them. They are the victims of a system in which the dice are loaded against them—they do their best with no chance of kudos.

Sometimes the Milne method has been tried in these institutions. But principles and routine, the spirit of these

places and their great airy spaces, are dead against the test. You cannot deal faithfully with this thing by the perfunctory inunction of a few children in a draughty ward. Milne himself always gave "careful injunctions to avoid cold for three weeks and to have the children warmly clad." The method is simplicity itself. But unless its few plain directions have been followed to the letter, it is futile to criticize or condemn. On the Continent there is a growing interest in this method, and the exigencies of medical work under war conditions proved its value to more than one French observer.—I am, etc.,

Belfast, Feb. 15th. ROBERT WATSON.

A JOURNALISTIC INDISCRETION.

SIR,—In view of the recent articles that have been appearing about 86, Brook Street, in the *Daily News*, I feel compelled to ask you to be good enough to publish this brief note, in which I would desire emphatically to dissociate both myself and any of my colleagues from the etiology of those articles.

I may just add that our united disapproval has found expression not only in an attempt on my part to suppress the publication of the last two articles, but also in a letter repudiating all knowledge and responsibility of them, written to the General Medical Council.—I am, etc.,

DRURY PENNINGTON,
86, Brook Street, W.1, Feb. 16th. Medical Director.

HISTORY OF HARLEY STREET.

SIR,—I am engaged upon a short history of the Harley Street and Wimpole Street district from a medical point of view, as that has, I believe, never been done before. I should be very grateful to any of my professional brethren for personal or topographical information relating to any of the houses in these or adjacent medical streets, including Cavendish Square.—I am, etc.,

26, Welbeck Street, W.1, Feb. 16th. C. EDWARD WALLIS.

Obituary.

E. E. KLEIN, M.D., F.R.S.,

Formerly Lecturer on Histology and Advanced Bacteriology, St. Bartholomew's Hospital Medical School.

DR. EDWARD EMANUEL KLEIN died at his residence in Hove on February 9th, in his 81st year. He was born on October 31st, 1844, at Ersec, near Vienna, the son of a Hungarian merchant, and received his medical education at Vienna. He devoted himself to microscopical anatomy, was appointed an assistant professor at Vienna University, and before the age of 24 had published a monograph on the oesophageal musculature. In 1869 the New Sydenham Society decided to publish a translation of the *Manual of Human and Comparative Histology*, edited by Professor Stricker of Vienna, and Klein was sent by Stricker to London to make arrangements for this translation. Among those whom he met during this his first visit to England were Huxley, Burdon-Sanderson, and John Simon. He returned to Vienna in the autumn of the same year; but following a parliamentary subsidy of £2,000, voted to enable the medical department of the Local Government Board to undertake special investigations, Sir John Simon, medical officer to the Privy Council and afterwards general medical officer to the Local Government Board, invited Klein to return to England in April, 1871, in order to undertake certain researches of a kind for which he seemed peculiarly fitted.

Those who came in contact with him here recognized him as a brilliant young histologist, well trained in what was then a very brilliant school—Vienna. At that time the earliest work in this country on the particulate nature of contagion was being done by Sir John Burdon-Sanderson; but bacteriology was quite in its infancy. Klein was allotted quarters in the Brown Institute under Burdon-Sanderson, then its superintendent. His early papers are to be found in the Local Government Reports from 1871 onwards; they are essentially the work of a histologist, dealing with the microscopical morbid anatomy of such diseases as sheep-pox, typhoid fever, and scarlet fever. In particular he worked out the histology of the lymphatic system, and in 1873 published a book on that subject which is justly regarded as a classic. This was followed two years later by another on the lymphatic system of the lungs.

He began bacteriology, after the manner of a histologist, by looking for the infecting agent with a microscope; then after a year or two he got on to cultural work. If Burdon-Sanderson be not so reckoned, Klein was the earliest bacteriologist in England. Burdon-Sanderson went off on physiology; Klein abandoned histology and stuck more and more to bacteriology. The sort of work he did may be judged from the succession of papers he poured out year by year in the Local Government Board Reports. He cannot, of course, be placed alongside Pasteur, who founded bacteriology, or Koch, who developed it as a working science. But Klein did great things for bacteriology in England. He made many mistakes, as we can see now, but he was a pioneer and kept himself and this country abreast of what was going on on the Continent. He did far more than any other man to develop the subject in England. In recognition of his pioneer investigations he was elected a Fellow of the Royal Society in 1875.

Klein had not long settled in London when the Medical School of St. Bartholomew's Hospital secured him as a lecturer on histology, though his broken English was at first a source of merriment to the ribald student. He held this post for many years, and subsequently lectured also on general physiology jointly with Dr. J. S. Edkins, until the latter took over the whole lectureship. In 1890 he opened a private school of bacteriology in Great Russell Street, taking pupils to train, of whom Sir Ronald Ross was one. Sir Frederick Andrewes and Sir William Hamer also worked there under him. A year or two later the Medical School authorities of St. Bartholomew's allotted him a laboratory at the top of the school buildings, where Sir Frederick Andrewes continued to work with him, and was joined later by Dr. Mervyn Gordon and Sir Alexander Houston. To these pupils and fellow workers Klein allotted particular pieces of investigation commissioned by the Local Government Board, for the practical distribution of the annual grant by the Board for research was usually left to him. He went on working in his laboratory at Bart's up to the time of his retirement.

In 1873 he had collaborated with Burdon-Sanderson, Michael Foster, and Lauder Brunton in the preparation of *A Handbook for the Physiological Laboratory*; his section on histology, though very useful to advanced workers, was rather over the head of the ordinary student. In 1879 he published jointly with the medical draughtsman, E. Noble Smith, an illustrated *Atlas of Histology*. In 1883 his well known *Elements of Histology* appeared; this proved very successful, and later editions were translated into French and German. In 1884 he published *Micro-organisms and Disease; an Introduction into the Study of Specific Micro-organisms*, which was considered to be one of the most important books from the point of view of the establishment of bacteriology as a science. In the eighties, in conjunction with Dr. Gibbes, he undertook an investigation of Asiatic cholera, and subsequently produced a form of prophylactic treatment for this disease. He was concerned with several important inquiries: thus, in 1876, he gave evidence before the Royal Commission on Vivisection; in 1893 he investigated the typhoid epidemic in Winchester and Southampton, and the scarlet fever outbreak in Glasgow; subsequently he turned his attention to the bacteriology of food decomposition. He continued his researches for the Government, retaining his appointment under the Local Government Board for about forty years in all. One of his more important investigations was in connexion with the cause of plague; his *Studies in the Bacteriology and Etiology of Oriental Plague* appeared in 1906. Indeed, some of Klein's best work was done late in life. In the course of his inquiries for the Fishmongers' Company he established standards for shellfish pollution, which still hold good. For some years he was an active member of the Scientific Grants Committee of the British Medical Association.

Dr. Klein married in 1877 Sophia Mawley; she died in 1919. He leaves a son, Dr. Bernard Klein, and a daughter. The funeral was on February 12th at Hove Cemetery.

JAMES WATSON ALLAN, M.B., C.M.,

Late Physician Superintendent, City of Glasgow Fever Hospital.

DR. JAMES WATSON ALLAN of Broughton, Peeblesshire, who recently died, was educated at Glasgow, where he graduated M.B., C.M. in 1869. He was elected a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow in 1918. He spent several years of his early professional life as surgeon to the Belford Hospital at Fort William. At that time he took a very active interest in the geology and natural history of the surrounding country and erected a meteorological outfit in the hospital grounds. Dr. Allan later became physician superintendent to the Belvidere Fever Hospital of Glasgow, where he remained for many years. He was subsequently appointed physician and lecturer to the Royal Infirmary, and established a consulting practice. He was also for some time physician superintendent of the City of Glasgow Infirmary at Bellefield, from which he retired a year or two ago. Dr. Allan was chairman of the Glasgow Central Division of the British Medical Association from 1905 to 1907, and was a member of the Glasgow and West of Scotland Branch Council from 1900 to 1902. He was the author of several publications on infectious diseases and industrial medicine. He was a Fellow of the Society of Antiquaries.

A colleague writes: Dr. Allan was for many years physician superintendent of the City of Glasgow Fever Hospital, Belvidere, and as "Allan of Belvidere" was held in affectionate remembrance by a wide circle of former assistants. Few men can have exerted such a deep influence on his subordinates as he did by his example. He was a man of great sympathy, tact, and consideration for others; while he commanded respect by his wide professional knowledge and devotion to duty, he earned affection by his kindness, unselfishness, and unfailing sympathetic interest in his subordinates. This interest followed them throughout their subsequent careers. He was a man of wide reading and extensive culture, to whom the saying *Nihil humanum a me alienum puto* was specially applicable. He was a member of the Glasgow Philosophical Society and a Fellow of the Archaeological Society (Scotland). He took an active part in the proceedings of local medical societies, and was at one time president of the Glasgow Southern Medical Society. Dr. Allan was unmarried. He was a brother-in-law of the late Sir William Macewen, who was a fellow student and contemporary at Glasgow University.

EVAN JONES, M.R.C.S., L.S.A.,

Formerly of Aberdare.

THE news of the death of Dr. Evan Jones, formerly of Aberdare, has caused much sorrow in South Wales and will be received with great regret by many old members of the Council of the British Medical Association, who had learnt to respect his sound judgement and to admire his genial character. He was born in 1837 and received his medical education at St. Thomas's Hospital. He took the diplomas of M.R.C.S. and L.S.A. in 1858, and immediately afterwards went as assistant to Dr. Roberts at Aberdare, the centre of a large colliery district. He soon became extremely popular among the workmen, and continued to direct a very large practice in the Aberdare valley until, in 1909, he retired and took up residence in London, where he was often seen at medical dinners and other public functions.

He must have been one of the oldest members of the British Medical Association, for his name appears on the list for 1864—the earliest available. He was a member of the South Wales and Monmouthshire Branch Council for several periods, and became honorary treasurer in 1905; he was elected by the Branch to be its representative on the Central Council of the Association in 1887 and continued to serve until 1904. He was at one time a member of the Journal and Finance Committee. He was also, from 1894 to 1901, a member of the Parliamentary Bills Committee, which at that time did much of the work now conducted by the Medico-Political Committee. He held many appointments in the county of Glamorgan, was one of the oldest magistrates, and an income tax commissioner. He was an ardent Freemason and was twice Master of the St. David's Lodge, Aberdare—first in 1873, and again, showing how well he was still remembered, in 1923. He joined the Volunteers early in life, rose to the rank of colonel in the Welsh Brigade, and received the V.D. The funeral, which took place at Trecynon, Aberdare, on February 13th, was of a private character.

DR. FRANK W. A. GODFREY of Scarborough died in a nursing home on February 3rd, aged 64. He was born at sea during the voyage of his parents to Australia, and he received his early education in that country. He subsequently studied at the University of Edinburgh, where he graduated M.B., C.M. with honours in 1883. After serving as resident surgeon to the Edinburgh Royal Infirmary and resident medical officer at the Edinburgh Royal Maternity Hospital, he went to Scarborough, and held the post of house-surgeon to the Scarborough Hospital and Dispensary. Later he joined Drs. John and Everley Taylor in partnership, and ultimately became head of the practice. He was appointed to the honorary medical staff of the Scarborough Hospital in 1892, and on his resignation in 1909 was appointed honorary consulting surgeon; he was also president of the hospital in 1917 and 1918. During the war he worked at the Scarborough Hospital. Dr. Godfrey was an ex-president of the York Medical Society, and was president of the Yorkshire Branch of the British Medical Association in 1909. He is survived by his widow and three daughters. Before the commencement of business at the Scarborough Police Court on February 4th the Mayor paid tribute to the memory of the late Dr. Godfrey, who, he said, was a man who did a very great deal of public service and would always be remembered as an ideal citizen.

DR. FREDERICK HENRY DE GRAVES BEST of Waltham Cross died on January 23rd, aged 55. He was educated at St. Bartholomew's Hospital Medical School, and took the diplomas of the Conjoint Board in England in 1895. Three years later he succeeded Dr. Rentzsch in practice at Waltham Cross, and subsequently became medical officer and public vaccinator for the Cheshunt District of the Edmonton Union. He was highly esteemed by his patients and all with whom he came in contact. He was a member of the East Hertfordshire Division of the British Medical Association. The funeral was attended by a number of friends and by representatives of various local bodies.

DR. HENRY G. DEANS of Edenfield died on January 23rd in North Wales, whither he had gone for the benefit of his health, aged 57. He was the son of the late Mr. George Deans, J.P., of Kintore, Aberdeenshire, and was educated at Aberdeen University, where he graduated M.A. in 1887, M.B., C.M. in 1890, and M.D. in 1912. He had practised at Edenfield for about thirty years and was held in high esteem by his patients. He was a member of the Bury Division of the British Medical Association. Dr. Deans was a keen golfer, and in 1923 was chosen to represent the Rosendale Golf Club in the final for the Bury Infirmary gold trophy in aid of the cot fund. He is survived by his widow.

PROFESSOR TRENDELENBURG, whose death on December 16th, 1924, in Berlin, was recently announced, was born in 1844. Part of his medical education was obtained in Edinburgh and Glasgow, where Allen Thomson, professor of anatomy, gave him special help and instruction. Having taken part in the wars of 1866 and 1870, Trendelenburg was appointed in 1874 director of the surgical department in the newly erected municipal hospital of Friedrichshain. In the following year he became a professor in the University of Rostock, and subsequently was appointed to the University of Bonn. In 1895 he joined the University of Leipzig, and became director of the surgical clinic. His pioneer work in joint surgery is well known, but he was

also renowned for his work on gastrostomy; he published also monographs on diphtheria and tracheotomy. The Trendelenburg position for operations on the bladder and other pelvic organs may be said to have put surgery of the pelvis on to a systematic basis. He was also responsible for some definite improvements in the treatment of varicose veins, and operations on the nose and face.

Dr. ARTHUR ERNEST HAYWARD of Truro died from pneumonia following influenza on January 27th, aged 62. He was the son of the Rev. G. A. Hayward of Colchester, was a student at St. George's Hospital Medical School, and took the diplomas of M.R.C.S. and L.S.A. in 1884. After a short period of work at Teignmouth and Brixham he went to Australia and practised at Southport near Brisbane, Queensland, and later at Hobart Town, Tasmania. He was honorary secretary and treasurer of the Tasmanian Branch of the British Medical Association in 1916-17, and on the offices being divided he served as treasurer of the Branch for 1918-21. On returning to England three or four years ago he settled at Truro, taking the practice of the late Dr. Aitken. He is survived by his widow and two daughters.

Professor ROBERT GERSUNG, a well known surgeon of Vienna, and one of Billroth's most distinguished pupils, has died at the age of 80.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on February 14th the following medical degrees were conferred:

D.M.—W. R. Brain, G. J. D. Hindley.
B.M.—J. L. Cox, T. H. Cathrall.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on February 7th the following medical degrees were conferred:

M.B., B.CHIR.—E. A. B. Pritchard, B. Broadbent, R. Whillis, W. I. Daggett.
B.CHIR.—E. G. Morris.

UNIVERSITY OF LONDON.

THE following have been recognized as teachers of the University in the subjects mentioned and at the institutions indicated:

St. Thomas's Hospital Medical School.—Dr. P. H. Mitchiner (anatomy) Mr. W. Legge Symes (physiology).
Middlesex Hospital Medical School.—Dr. D. McAlpine (neurology).
London (Royal Free Hospital) School of Medicine for Women.—Dr. Evelyn E. Hewer (histology).
University College Hospital Medical School.—Dr. Francis M. R. Walshe (neurology).
Lister Institute of Preventive Medicine.—Dr. R. Robison (biochemistry)

The Royal Dental Hospital and London School of Dental Surgery is continued as a school of the University in the Faculty of Medicine (in dentistry only) for a period of one year from January 1st, 1925.

The date for the commencement of the M.B., B.S. examination has been changed from the fourth Monday in October to the second Monday in November.

The Ph.D. degree in science has been conferred upon Isaac Cohen and Dr. Edward C. Dodds, both of Middlesex Hospital.

Professor F. R. Fraser has been appointed External Examiner in Medicine for the year 1925.

The ceremony of Presentation Day will be held in the Royal Albert Hall on Wednesday, May 13th, at 3 p.m. A graduation dinner will be held at 8 o'clock on the same day in the Drapers' Hall, Throgmorton Street, E.C.

A course of lectures on mental deficiency for medical officers of local authorities and institutions and medical men engaged in work for defectives will be given at the central buildings of the University from May 18th to 23rd; the lectures will be supplemented by a course of clinical instruction.

A Carpenter Medal, together with a money prize, of the value of £20 in all, will be awarded in 1925 for a thesis of exceptional distinction in statistical, genetic, comparative, or experimental psychology, including the functions of the central nervous system and special senses, for which a doctor's degree (other than the Ph.D. degree) has been awarded during the three years ending May 31st, 1925. Applications to be sent in by June 10th to the Academic Registrar, from whom further particulars may be obtained.

Applications for grants from the Dixon Fund for assisting scientific investigations must be sent in by May 15th to the Academic Registrar.

Applications for grants from the Thomas Smythe Hughes Medical Research Fund for assisting original medical research must be sent in not earlier than May 1st and not later than June 15th, 1925. Particulars can be obtained on application to the Academic Registrar.

A University Studentship in Physiology, of the value of £50 for one year, and tenable in a physiological laboratory of the University or of a school thereof, will be awarded to a student qualified to undertake research in physiology. Applications must be received by the Principal Officer by June 1st, 1925.

NATIONAL UNIVERSITY OF IRELAND.

THE *Calendar* for 1924 of the National University of Ireland contains an account of the establishment and constitution of the University, its regulations, constituent colleges, and various examinations. The names of the successful candidates in the examinations held in 1923 are published, and a list is supplied of the professors, lecturers, graduates, and diplomates of the University.

MECHANICAL RESTRAINT OF LUNATICS.

A REGULATION, dated January 7th, 1925, has been made by the Board of Control under Section 40 of the Lunacy Act, 1890. This section deals with mechanical means of bodily restraint, and declares that this shall not be applied to any lunatic unless the restraint is necessary for medical and surgical treatment, or to prevent the lunatic from injuring himself or others. By the new regulation the Board determines that "mechanical means of bodily restraint" shall include all instruments and appliances whereby the free movements of the body or of any of the limbs of a lunatic are restrained or impeded, but that the following instruments and appliances only shall be used for such purposes:

I. A jacket or dress, made of strong linen or some other strong material (*a*) laced or buttoned down the back, having long outside sleeves fastened to the dress only at the shoulders, with closed ends to which tapes may be attached for tying behind the back when the arms have been folded across the chest; or (*b*) of some other pattern approved under the seal of the Board, a sample bearing the seal of the Board being in this case kept at the institution or workhouse for inspection.

II. Gloves without fingers, so fastened at the wrists that they cannot be removed by the wearer, and made of linen, leather (chamois or other), or some strong material, padded or otherwise.

III. Sheets or towels, when tied or fastened to the sides or ends of a bed or to other objects.

IV. If, in the opinion of the medical officer or medical practitioner who gives the certificate required by the section, some other mechanical means of bodily restraint is necessary in a particular case where the circumstances are exceptional, such means may be used with the previous sanction of the Board for such period as they may authorize.

During the use of any of these forms of restraint, except No. II, the patient must be visited frequently by a medical officer and be kept under continuous special supervision by an attendant. The following are not to be regarded as mechanical means of bodily restraint within the section, but are to be used only under medical order, and their use must be entered on the clinical records:

(*a*) The continuous bath. A cover shall not be used unless the aperture therein for the patient's head is large enough for his body to pass through.

(*b*) The dry and wet pack. No straps or ligatures of any kind shall be used, and the patient shall be released for necessary purposes at intervals not exceeding two hours.

(*c*) Splints, bandages, and other like appliances when used in accordance with recognized surgical practice for operations or the treatment of fractures or other local injuries, and not so as to interfere with the free movement of the body or limbs more than is necessarily incident to their use for such purpose.

(*d*) Gloves, if so fastened as to be removable by the wearer.

(*e*) Sheets or towels used only for the purpose of artificial feeding, and merely held, not tied or fastened.

(*f*) Trays or rails fastened to the front of chairs used by idiot children, cripples, or aged infirm adults to prevent their falling out and thereby injuring themselves, provided in the case of adults that it is within the patient's power to undo the fastening.

In framing this regulation, which defines the mechanical means which may alone be used, the Board has merely discharged the duty cast upon it by Subsection 6 of Section 40. It desires to guard itself most strictly against the supposition that it has thereby given any greater countenance to the employment of this form of treatment than it has hitherto shown. While recognizing the possible occurrence of cases in which its employment may be necessary and consistent with humanity, it remains of opinion that the application of mechanical restraint should always be restricted within the narrowest possible limits, that it should not be long continued without intermission, and that it should be dispensed with immediately it has effected the purpose for which it was employed. The regulation will come into operation on April 1st, 1925.

Medical News.

A TELEGRAM from New York was published in the newspapers last week announcing that "a chemical compound which kills all germs in the kidneys and urinary tract" was being used with success at Johns Hopkins Hospital, Baltimore. It was said to have been discovered by Dr. Veader Leonard, working in co-operation with Professor Treat B. Johnson of Yale. The compound is stated to be hexylresorcinol. Mr. Frank Kidd has pointed out to us that Leonard published a full account of his researches in the *Journal of Urology*, December, 1924, and was careful to state that the drug seemed to act powerfully against Gram-positive cocci but to have an incomplete effect in the human being against the colon bacillus, except in very mild infections. Mr. Kidd adds that he has found that less than 10 per cent. of kidney infections are due to the coccal group of bacteria, the majority being due to the colon bacillus.

IN connexion with the arrangements recently entered into by the London School of Hygiene and Tropical Medicine with the Government of Southern Rhodesia for the development of research work in that country, the London School has appointed for a term of three years G. R. Ross, M.B., Ch.B., D.P.H., Ph.D., to be Rhodesian Research Fellow. Dr. Ross is at present lecturer in bacteriology in Leeds University. He will go to Salisbury, Southern Rhodesia, early in March, and will first study the etiology and pathology of blackwater fever. The laboratory at Salisbury has been placed by the Government of Southern Rhodesia at his disposal, and later on, if it is considered desirable, he will carry out other investigations on lines from time to time to be agreed by Dr. Andrew Balfour, the Director of the School, in consultation with Dr. Andrew Fleming, the Medical Director, Southern Rhodesia.

THE Home Secretary issued on February 16th new regulations for workers exposed to the danger of silicosis. They will come into force on May 1st and apply to industries dealing with materials containing over 80 per cent. total silica. The Home Secretary is to appoint a medical board, and a company will be formed to collect funds from employers and distribute them to workers who have been awarded compensation by the board. Medical examinations of the workers are to be made at prescribed intervals, with a view to suspending from employment any found to be suffering from silicosis or tuberculosis. Workmen will also be examined when beginning such employment for the first time, in order that any with cardiac or pulmonary impairment may be excluded.

THE Fellowship of Medicine announces that Professor H. Maclean will lecture at the Royal Society of Medicine on March 2nd, at 5.30 p.m., on renal disease, its diagnosis and treatment. On March 2nd also a three weeks' course in medicine, surgery, and gynaecology will commence at the Royal Waterloo Hospital, and, beginning on March 9th, the Central London Ophthalmic Hospital has arranged a four weeks' afternoon course. The Chelsea Hospital for Women and the Hospital for Diseases of the Chest (Brompton) have each arranged a two weeks' course to begin on March 16th. The last fortnight of March will be devoted to an intensive course arranged by the Royal Northern Hospital with the Royal Chest Hospital. The second week of the intensive course at the Prince of Wales's General Hospital, Tottenham, begins on February 23rd. An informal discussion on post-graduate study, open to all members of the medical profession in London as well as members of the Fellowship of Medicine from the provinces and overseas, will be held on March 18th, at 6 p.m., at the Royal Society of Medicine. Copies of the syllabus of each course may be obtained from the Secretary to the Fellowship at No. 1, Wimpole Street, W.1.

A COURSE of three lectures, on the history of influenza, diphtheria, and typhoid fever respectively, will be delivered by Dr. Charles Singer at University College Hospital Medical School on March 5th, 12th, and 19th. The lectures, which will be given at 4.15 p.m. on each day, are open to medical students of the University of London.

A MEETING of the Federation of Children's Rescue Committees will be held at the Kingsway Hall, Kingsway, W.C., on Friday, March 6th, at 5.15 p.m., when the Duchess of Atholl, D.B.E., M.P., will take the chair. The speakers include the Bishop of Kingston, Dr. A. H. Norris (Chief Inspector, Children's Branch, Home Office), and Dr. Elizabeth Sloan Chesser.

THE next meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health will be held on Friday, February 27th, at 5.30 p.m., at 1, Upper Montague Street, Russell Square, W.C. Mr. Somerville Hastings, F.R.C.S., will give a lecture, with lantern illustrations, on "Measures to prevent aural defects."

AT the meeting of the Industrial Applications Section of the Royal Microscopical Society on Wednesday next, at 20, Hanover Square, Dr. James A. Murray will at 7.30 p.m. begin the first of a series of three lecture demonstrations on the making of microscopical preparations. The first lecture will deal with wet preparations.

THE jubilee of the Metropolitan (Queen's) Nursing Association for Nursing the Poor in their own Homes will be celebrated by a service in St. Martin's-in-the-Fields at 2.15 p.m. on March 18th.

THE trustees of the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation announce that applications for grants to be held during 1925–26 should be in the hands of the executive committee before May 15th. If all the funds are not assigned in the spring, further consideration will be given to applications received before September 15th. Such applications should be sent to the secretary of the executive committee, Dr. F. W. Peabody, Boston City Hospital, Boston, Massachusetts, U.S.A., from whom further information may be obtained. Researches will be favoured that are directed towards the solution of problems in medicine and surgery, or in branches of science bearing on medicine and surgery. Grants may be used for the purchase of apparatus and supplies needed for special investigations. Thirty-two applications were received during last year, and grants were made in eight instances—six in the United States, one in France, and one in Switzerland.

THE metropolitan borough council of Bermondsey has adopted a scheme of health propaganda. The programme covers a wide range, including questions of preventable and other diseases, housing, personal hygiene, food, and industrial diseases, and the propaganda is to be undertaken by leaflets, advertisements, electric signs, town-hall lectures, open-air demonstrations, and the establishment of a central office of information. There are indications that the enterprise of Bermondsey may stimulate other bodies, including the London County Council, to similar efforts.

THE King has granted permission to Dr. A. J. Orenstein to wear the Cross of Chevalier de l'Ordre de la Couronne conferred upon him by the King of the Belgians in recognition of valuable services rendered in combating malaria in the Katanga province of the Belgian Congo.

THE half-yearly election for the admission of fatherless children to the Royal Infant Orphanage, Wanstead, E.11, will be held in May next. Children are received from birth up to 7 years of age and maintained and educated until 16. Application should be made as early as possible to the secretary at the orphanage.

THE University of Bari, in Southern Apulia, which was inaugurated on January 15th, possesses a medical faculty with chairs in clinical medicine, clinical surgery, gynaecology and obstetrics, ophthalmology, hygiene, medical anatomy, and pharmacology and therapeutics.

THE late Dr. Herbert Williamson, physician accoucheur to St. Bartholomew's Hospital, who left estate of the gross value of £62,932, with net personalty £61,336, bequeathed £1,000 to the endowment fund of St. Bartholomew's Hospital Medical College.

THE issue of the *Paris Médical* for February 7th is devoted to physiotherapy. Professor Regaud contributes an account of the physiological basis of radiotherapy of malignant growths, and A. Lacassagne reviews the present position of radio-active substances in internal medicine. J. Lavedan discusses the cardio-vascular reactions due to x rays, and R. Proust and R. Coliez consider the possibility of improving the penetration of x rays and radium emanations.

THE widow of the late Dr. Paul Delbet, whose death we announced in our issue of January 31st (p. 246), has offered an annual prize of 1,000 francs to be awarded by the Société de Chirurgie for the best work on a gynaecological subject. The typescript should be sent to the general secretary, M. Barbarin, Avenue du Président Wilson, Paris, before March 1st.

AN Italian league against sexual dangers has recently been formed under the presidency of Professor Ettore Levi.

TWO courses in tropical medicine and medical parasitology will be held during the year at the Hamburg Institute for Marine and Tropical Hygiene. The first will take place from March 9th to May 16th, and the second from October 2nd to December 12th. Further information can be obtained from the Institut für Schiffs- und Tropen-Hygiene, Bernhardstrasse 74, Hamburg 4.

AN institute for the study of occupational diseases has been founded at Leningrad under Government auspices.

THE new institute for the study of criminal psychology in Paris is to be named after Lombroso.

THE Minister of Health has appointed Mr. Howell E. James to be secretary of the Welsh Board of Health.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.* Authors desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Financial Secretary and Business Manager, 429, Strand, W.C.2, on receipt of proof.

ALL communications with reference to advertisements as well as orders for copies of the JOURNAL should be addressed to the Financial Secretary and Business Manager, 429, Strand, London, W.C.2. Attention to this request will avoid delay. Communications with reference to editorial business should be addressed to the Editor, BRITISH MEDICAL JOURNAL, 429, Strand, W.C.2.

Communications intended for the current issue should be posted so as to arrive by the first post on Monday or at latest be received not later than Tuesday morning.

THE telephone number of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is Gerrard 2630 (Internal Exchange). The telegraphic addresses are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London.*

MEDICAL SECRETARY, *Mediocra Westrand, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

SNORING.

DR. SAMUEL SAMUEL (Leeds) writes: In reply to "Wiltshire," the snoring is probably due to the patient recently acquiring, owing to some state of health, the habit of sleeping on his back. If the patient will make an effort to resume sleeping on his side the "flapping" of the soft palate causing the snoring will cease.

INCOME TAX.

Assistant's Expenditure.

"A. G.," who qualified in 1922, acted during the year ended April 5th, 1924, as a temporary assistant, then as a ship surgeon, and afterwards as a locumtenent. During 1924 he had been holding an appointment as an assistant. Can he deduct any of the following expenses: (1) Agents' fees, (2) travelling expenses, (3) purchase of necessary instruments, (4) cost of sea kit (ship's uniform, etc.)?

*** The governing principle is that expenses must be incurred wholly, exclusively, and necessarily in the performance of the duties of the office. Applying this rule as judicially interpreted: (1) Agents' fees are incurred prior to the performance of the duties and strictly are not allowable; we believe, however, that they are often allowed in the case of locumtenents, on the ground that the person doing such work is not so much holding a succession of appointments as exercising his profession in a particular way. The position as to (2)—travelling expenses—is the same as in the case of agents' fees. (3) Expenditure on the purchase of instruments is allowable only in respect of sums spent on their replacement and maintenance—the cost of acquiring or improving the equipment is capital outlay. (4) The cost of the sea kit would not be allowable.

LETTERS, NOTES, ETC.

A DISCLAIMER.

THE EDITOR OF THE "LANCET" (423, Strand) writes: As communications have reached this office suggesting that a compliment paid to the *Lancet* recently in a Sunday newspaper was inspired by some member of the staff, will you let me assure your readers that this was not the case, and that the views expressed are not ours.

INUNCTION TREATMENT OF SCARLET FEVER.

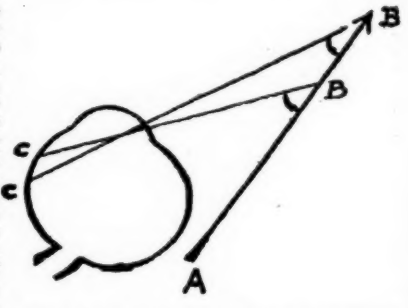
DR. JOHN BROWN (Blackpool) writes: The circular letter issued by Dr. W. Robertson, M.O.H. for Edinburgh, and referred to in the JOURNAL of January 31st (p. 323), is one that I can support by many years' experience as M.O.H. for the borough of Bacup. I used pure carbolized oil, which was given freely in all cases of scarlet fever. The results were excellent and fully justified the Milne method of treatment. I published a paper on the prophylactic advantages of early and continued inunction of carbolized oil in scarlet fever in the BRITISH MEDICAL JOURNAL, 1887. Moreover, I am confident that scarlet fever should not be treated in hospitals if this can be avoided. The disease tends to be more severe when so many are in one hospital. With plenty of fresh air and isolation in the home, with inunction, results are more favourable. Burning a little brimstone on hot cinders in the sick room should be done.

TREATMENT OF DIABETES INSIPIDUS.

DR. T. FIELDING WOODHEAD (Huddersfield) reports the successful treatment of a very stubborn case of diabetes insipidus occurring in a man aged 45, and attributed to alcoholic excess. The extreme thirst was most difficult to control: mineral waters were prohibited, and cold milk was found to be the best thirst quencher. Whenever the patient was thirsty he was allowed to drink one-half of a breakfast cup of cold milk, and was instructed to sip the remainder. With proper self-control in this respect the thirst soon disappeared. As the patient was very exhausted at first, one teaspoonful of whisky in milk was allowed three times a day, until the specific gravity of the urine rose to 1010. Hot milk Dr. Woodhead believes to be the best stimulant. All red meat was prohibited; this he considers the most essential part of the treatment. White meat, such as fowl, pork, and fish, also eggs, were allowed; sugar was given, and a bitter tonic was found very valuable in reducing the craving for alcohol. The urine was examined twice a week until the specific gravity increased to 1010, after which weekly examinations were sufficient. One incident during the treatment convinced Dr. Woodhead that it was on correct lines. When the urine specific gravity had reached 1010 the patient felt much better, and thought a change of air would be beneficial, so, without obtaining consent, he went to a hydropathic establishment where the diet was not restricted. Within a week his condition had deteriorated to its previous level and the specific gravity of the urine dropped to 1003. Resumption of treatment, however, gave complete relief.

AN OPTICAL PUZZLE.

DR. HORATIO MATTHEWS (London, W.) writes: No one has seen a straight line; everything we see suggesting straightness would, if continued, be manifestly curved and even arched or bowed. The accompanying diagram explains why this is so. As long as the arrow-head progresses, even though it be in a divergent direction, the angle A B C diminishes (where B C is a line of vision). Consequently there must come a position when, the angle being zero, the arrow-head is seen immediately in front of the observer. Thereafter the angle will once more begin to increase, and the arrow-head will commence to traverse across the middle line to the opposite side of the field of vision. In nature such a line would be one drawn from a star on the right of the field of vision to a star on the left. Theoretically it is a straight line, but optically it describes a curve across the dome of the sky. The same principle applies to any so-called straight line in the field of vision. So long as its direction moves round the retina, so long will the retina move it round.



MOTOR TAXATION AND REGISTRATION.

THE Automobile Association has issued a pamphlet setting out for motorists in simple language the various requirements of the law on taxation and registration of motor cars and motor cycles. It explains what to do when buying or selling a car, when changing its character, or when wishing to surrender a car licence and obtain its unexpired value. It also contains tables showing at a glance for any period of the year the exact amount of tax payable for annual, quarterly, or shorter period licences. Copies will be sent to motorists on receipt of a postcard addressed to the Secretary, Automobile Association, Fanum House, New Coventry Street, W.1.

"HYGIENE JINGLES."

DR. R. C. EVERITT ATKINSON, Commissioner of Public Health in Western Australia, has published a small book entitled *Hygiene Jingles* (Hospital Electrical and Radium, Ltd., Adelaide), with a view to instructing children in sound principles. The author's intentions are epitomized in a sentence in his preface as follows: "Try to write, in verse, elegantly of a rubbish bin, tragically of a mosquito, feelingly of a fly, or sympathetically of your 'inside,' and see how really difficult it is." His success may be judged perhaps by the following stanza:

A girl who's nice
May once or twice
Have nits or lice
  Within her hair,
But self-respect
Will soon detect
And then eject
  Them from their lair.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 37, 38, 39, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 67.